

JPRS-UEA-86-014

2 MAY 1986

USSR Report

ECONOMIC AFFAIRS

EKO: ECONOMICS AND ORGANIZATION
OF INDUSTRIAL PRODUCTION

No 1, JANUARY 1986

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USSR REPORT ECONOMIC AFFAIRS

EKO: ECONOMICS AND ORGANIZATION OF INDUSTRIAL PRODUCTION

No 1, January 1986

Except where indicated otherwise in the table of contents the following is a complete translation of the Russian-language monthly journal EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA published in Novosibirsk.

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PUBLICATION DATA

English title : EKO: ECONOMICS AND ORGANIZATION
OF INDUSTRIAL PRODUCTION No 1,
January 1986

Russian title : EKO: EKONOMIKA I ORGANIZATSIYA
PROMYSHLENNOGO PROIZVODSTVA

Author(s) :

Editor(s) : A. G. Aganbegyan

Publishing House : Izdatelstvo "Nauka"

Place of Publication : Novosibirsk

Date of Publication : January 1986

Signed to press : 28 November 1985

Copies : 158,101

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i organizatsiya promyshlennogo
proizvodstva", 1986

SIGNIFICANCE OF GREATER EFFECTIVENESS STRESSED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 1, Jan 86 pp 3-17

[Article by E. B. Figurnov, doctor of economic sciences (Moscow): "Growth of Effectiveness Must Be Stimulated"]

[Text] The party central committee will bring up for discussion at the 27th CPSU Congress a system of measures for further improving the management of the national economy. This includes a task which is written in to the draft of the documents for the congress "to increase the economic responsibility of the associations and enterprises for the final results of their work, the fulfillment of commitments for deliveries of products and better utilization of all kinds of resources. To reach a point where the economic mechanism orients the labor collective as much as possible toward acceleration of the growth rates and increased effectiveness of production, the introduction of new technical equipment, constant improvement of technology and the output of high-quality products."

The results of the work of the collectives are determined by more than just the quantity and quality of products that are produced, the promptness of deliveries and the savings on material and labor resources used for production. Up to this point the deviations from the socially necessary level of utilization of resources are certainly not in all cases made up for with income left at the disposal of the collective, mainly wages. Frequently these lead only to a reduction or a growth of that part of the income which should be placed at the disposal of the entire society. A certain step forward in the area of improving the utilization of resources became possible because of the large-scale economic experiment.

At enterprises that are conducting the experiment the savings on the wage fund remain at the disposal of the collective and an overexpenditure of this fund must be made up for by the collectives through savings on wavings. There has also been an essential increase in the responsibility and motivation to fulfill contractual commitments here: deductions into the material incentive fund are reduced by 3 percent for each percentage point of delivery shortages while for those enterprises that have not been changed over to the conditions of the experiment this reduction is only 1 percent. With 100 percent fulfillment of commitments for deliveries the material incentive fund is

increased by 15 percent, and for enterprises that are not participating in the experiment--only 10 percent.

The increased material responsibility of collectives participating in the experiment has contributed to a situation in which they have managed in a short period of time to improve the organization and rhythm as well as production and to direct it toward the fulfillment of contractual commitments. The improvement of material and technical supply for enterprises participating in the experiment also influenced the fulfillment of the latter.

But even under the conditions of the experiment the material responsibility of the collective or delivery shortages is much less than the damage caused to the society. For unconscientious suppliers are to blame for the fact that hundreds of associated plants and factories frequently operate with interruptions, delaying, in turn, the dispatch of items to their own clients. Thus associations and enterprises of 29 ministries in 1983 failed to receive 11 billion rubles' worth of products. Deductions into the material incentive funds were reduced by only 87 million rubles, which amounts to 0.3 percent of the wages of the collectives that caused the shortages in deliveries. The difference between the fines, penalties and forfeitures that were paid and those that were received in industry in 1983 amounted to 1.8 billion rubles--and this is about 5 percent of the wages of the enterprises which did not fulfill their contractual commitments.

During the first half of 1984 at enterprises of union ministries participating in the experiment the deductions into the material incentive funds were reduced because of shortages in the delivery of products: by 0.4 percent of the wage fund at enterprises of the Ministry of Heavy Machine Building, which failed to deliver 94 million rubles' worth of products, and 0.3 percent--in the Ministry of the Electrical Equipment Industry which failed to delivery 185 million rubles' worth of products.¹

Today the fines, penalties and forfeitures that are paid have practically no effect on the work of the collective. Regardless of their amount, neither the director nor the chief of the sales division, nor anybody else at the enterprise loses a kopeck. These sanctions work poorly from another point as well: the fines, penalties and forfeitures that are received are not linked to the wages. Moreover, they cannot be used by the enterprise for making up for losses caused by the delivery shortages since 95 percent of the positive difference between the fines, penalties and forfeitures that are paid and those that are received must be paid into budget income. Thus the fines, penalties and forfeitures which so successfully stimulate the fulfillment of contractual commitments in the system of commercial accounting have turned out to be ineffective under the conditions of the current economic mechanism since they do not influence the wages of the parties who are guilty of the delivery shortages.

The results of the utilization of resources are not fully reflected in the material incentives for the collective either. In 1983 enterprises of 29 industrial ministries exceeded the limit of material expenditures by 1.8 billion rubles. Deductions into the material incentive funds were thus reduced by only 6 percent of the sum of overexpenditure and by 1 percent of

the overall sum, including the wage fund and the material incentive fund and wages for enterprises that had allowed the overexpenditures. The increase in production costs at these enterprises amounted to almost 2 billion rubles. Deductions into the material incentive funds decreased by only 1.3 percent of the sum of overexpenditure and 0.3 percent of the wages of the enterprises that did not fulfill assignments for reducing production costs.²

The responsibility for the utilization of these resources has increased somewhat, as has the motivation to economize on them at enterprises that are conducting the experiment. Thus during the first half of 1984 in the Ministry of Heavy Machine Building the assignment for reducing expenditures per ruble of output was underfulfilled by only four enterprises. The reduction of deductions into the material incentive fund amounted to 9 percent of the overexpenditure and less than 2 percent of the wages. In the Ministry of the Electrical Equipment Industry these two indicators were 4 percent and less than 1 percent. Additional deductions into the material incentive fund for each percentage of above-plan reduction of production costs are made here, as a rule, at a 5 percent normative which is reduced by no less than 30 percent. Since the ratio between the material incentive fund and the production of cost of products at enterprises of these branches amounts to an average of 3:100, each ruble of additional reduction of production costs in terms of these deductions into the material incentive funds equal: $3 \times 5 \times 0.7 = 10.5$ kopecks. A small proportion of the above-plan reduction of production costs is expended for increasing the fund for development, part of which is formed according to the normative of profit. If this normative is 2 percent then each ruble of additional reduction of production cost leads to an additional deduction of 2 kopecks into the development fund. The result is an average of 12.5 kopecks.

For enterprises of four machine-building ministries--the Ministry of the Electrical Equipment Industry, the Ministry of Instrument Building Automation Equipment and Control Systems, the Ministry of Chemical Machine Building and the Ministry of Power Machine Building--beginning on 1 January 1985 a new policy was established for deductions into the fund for social and cultural measures and housing construction: depending on the savings on material expenditures. When these expenditures are reduced by 1.5 percent the planned amount of the fund increases by 10 percent. For each subsequent percentage point of reduction, the fund is increased by an additional 2 percent. The overall sum of money deducted into the fund must not exceed 50 percent of the sum of the savings that are achieved. But if the assignment for reducing material expenditures has not been fulfilled, the fund for social and cultural measures and housing construction is reduced by the same amount and according to the same policy.

The wages and the material incentive funds of the collectives do not depend on how production capital is utilized. It is assumed that the payment for funds and interest on credit will influence their effective application. But the profit on which the formation of the material incentive funds depends is balanced profit, on whose increase the amount of payments for funds and interest on credit has no effect. Since deductions into the economic incentive funds are proportional to the overall volume of profit, any introduction of production capital which increases profit is advantageous to

the enterprise, even if there is a concomitant reduction of the output-capital ratio and the profitability of production.

An enterprise which has free residual profit and increase in the payments for funds leads to a reduction of the deductions from this residual into the budget. The profit which remains at the disposal of the enterprise is not decreased. An enterprise which does not have free residual profit or applies the normative method of distributing it, when payments for funds are increased, can experience difficulties in covering those expenditures, the money for which is allotted after the formation of the economic incentive funds (capital investments, increase in circulating capital and so forth) but not in the formation of the funds themselves.

The current economic mechanism does not meet a requirement that is mandatory for simple reproduction of financial resources--reimbursement from incomes that remain at the disposal of the collectives which have a shortage of their own circulating capital. As a result, this shortage steadily increases. Their financial resources for the development of production are not coordinated with the results of the activity of the collectives. In the majority of cases they are allotted centrally, irrespective of whether the enterprise is operating poorly or well.

And since the system of incentives depends little on the results of the utilization of resources, frequently the collective has no interest in maximally utilizing everything that is productive and rapidly introducing everything that is new. Under these conditions the achievements of scientific and technical progress are introduced more slowly than life requires. It is necessary to have a closer connection between the results of the utilization of resources and the incomes left at the disposal of the enterprises, including the funds for wages.

How To Coordinate Economic Incentives With the Results of the Utilization of Resources?

In our opinion, in order to accomplish this it is necessary to extend to the enterprises the principles of the collective contract. Under the conditions of the contract system the enterprise is given an assignment for producing products on a particular list and funds are allotted for material resources. The wages and the funds for technical and social development as well as the deductions for the higher organization are formed as the difference between the earnings from product sales, on the one hand, and material expenditures on their creation, the shortage of circulating capital and the difference between the paid and received fines, penalties and forfeitures, the payment for production funds and fixed payments, on the other. In other words, all revenues at the disposal of the enterprise act as residual income of the collective, that is, the income remaining after paying for material expenditures and mandatory payments to the state.

In such a system with respect to all kinds of resources one applies the principle that is realized in the economic experiment with respect to the wage fund: a savings on a resource as compared to its planned expenditure increases by the amount of the savings the income remaining at the disposal of

the collective, and an overexpenditure of the resource by the corresponding amount reduces this income.

Table--Indicators of Operation of Enterprise Under Conditions of Economic Experiment, millions of rubles

	According to Established Plan and Calculations of Higher Organizations	Actual
Product sales	10.0	10.5
Material expenditures on sold products	3.5	4.0
Shortage of internal circulating capital	--	0.1
Difference between paid and received fines, penalties and forfeitures	--	0.1
Payment for production capital	0.3	0.4
Fixed payments	0.2	0.2
Income remaining at disposal of collective and deductions from it into the budget	6.0	5.7
Including:		
Wages	3.0	2.85
Deductions into development fund	1.2	1.14
into fund for social-cultural measures and housing construction	0.3	0.285
into reserve fund	0.15	0.1425
for social security	0.3	0.285
into fund of higher organization	0.15	0.1425
from residual income of collective into budget	0.9	0.855

We shall show the application of this system with a conventional example presented in the form of a table.

An enterprise has overfulfilled the plan for product sales but has not fulfilled the assignment with respect to the maximum level of material expenditures, has had more production capital than was planned, has failed to fulfill contractual commitments and has allowed a shortage of its own circulating capital. After reimbursement of material expenditures the shortage of its own circulating capital, the payments for fines and the deposits into the budget of payments for production capital and fixed payments, the income which remained at the disposal of the collective turned out to be 0.3 million rubles less than it had coming to it from the fulfillment of planning indicators. As one can see from the example, the difference between the actual and planned residual income of the collective is equal to the sum of deviations from the plan in the utilization of all kinds of resources. Through the difference between the paid and received fines it also reflects the actual damage caused by the underfulfillment of assignments and commitments for deliveries.

The simplest of all, and, in our opinion, stimulating most completely the influence of the residual principle of the formation of income placed at the

disposal of the collective on the utilization of resources is provided with the help of economic normatives for the distribution of the actual residual income. They are established for the enterprise as the proportions of the planned amount of each of the funds for incentives in the planned residual income of the collective. Thus in the example that has been given the normative of wages will be 0.5 (3.0:0.6), deductions into the fund for development--0.2 (1.2:6.0), deductions into the fund for social and cultural measures and housing construction--0.05, and so forth, and deductions into the fund for social and cultural measures from the residual income of the collective into the budget--0.15. By multiplying these normatives by the actual residual income that is obtained (5.7 million rubles), we have the actual amounts of the incentive funds.

Advantages of the Contract System of Stimulating Collectives

The first and main advantage of the contract system is that in all cases the deviation from the socially necessary level of the utilization of resources determined by the plan is fully reflected in the income that remains at the disposal of the collective, and the wage fund increases or decreases in proportion to the savings or the overexpenditure of the resources.

If labor productivity is higher (lower) than planned, then the volume of output will be greater (less) than planned and in the same proportion there will be an increase (reduction) of the collective's income formed according to the residual principle. With an overexpenditure of raw materials, processed materials, fuel and energy the income of the collective will decrease since it is the difference between the amount of the sold products and the material expenditures on their production, deposits into the budget of payments for funds and fixed payments and expenditures on the reimbursement for damage caused to other enterprises. If material resources are saved, the income of the collective and its variables increase by the amount of the savings. If there has been a shortage in circulating capital, it should be made up for, which will reduce the income of the collective.

When the utilization of production capital deteriorates, amortization deductions (part of the material expenditures), payment for funds and the sum of interest on credit increase, which correspondingly reduces the income of the collective. When their utilization improves the income of the collective increases in the same measure.

The results of the utilization of natural resources exert a similar influence on the income of the collective through the system of fixed payments. The forfeitures, fines and penalties that are paid and also other payments for damage from violation of commitments for deliveries correspondingly reduce income. It increases by the sum of additional payments for product quality and it decreases by the sum of rebates because of uncertified products and fines for poor quality. The introduction of the achievements of scientific and technical progress reduces expenditures of resources and this means that income increases.

Deductions from the collective's income into the budget are made analogously to the normative method for distribution of calculated profit--it is applied

at enterprises participating in the experiment. But in a proposed system the economic influence of this method on the collective is stronger since the normative is established not with respect to calculated profit, but with respect to the income of the collective, according to the absolute amount which is significantly greater than the calculated profit.

The stimulating role of the residual principle of the formation of income placed at the disposal of the collective can be increased by removing from it the deductions for social insurance and also by removing or reducing to a minimum the deductions from the residual income of the collective into the budget.

If the deductions for social insurance were established in proportion to the number of workers and not in proportion to the wages, and the residual income were formed minus these deductions, then any reduction of the number of personnel would reduce deductions and, correspondingly, increase the residual income of the collective, while an increase in the number of personnel, conversely, would reduce this. In this case the deductions for social insurance would become an additional stimulus for releasing excess personnel. Let us note that expenditures of the society on social insurance are proportional more to the number of personnel than to the wages of the workers, and therefore the proposed approach is also justified from this standpoint.

In order to eliminate or reduce to a minimum that part of the residual income of the collective which, according to the normative, is deducted into the budget, at highly profitable enterprises it is possible to increase the normative of payment for production funds and the rates of turnover tax, and to apply fixed payments more extensively. The latter should become a method of removing differential rent, which arises both because of the utilization of effective resources and because of the more advantageous location of the enterprise. In this case deviations from the socially necessary level determined by the plan for the utilization of resources would have no effect at all on the increase of the added product which is subject to deduction into the budget and would be fully paid off from income remaining at the disposal of the collective. With these payments into the budget one could create equal conditions for management in the sense that the income would depend only on the efforts of the collective itself and not on other factors (natural, location, technical supply and so forth).

The second advantage of the system of economic incentives we propose is that it makes it possible to reduce the number of planning indicators set for the enterprises and at the same time to increase the effectiveness of cost accounting [khozraschet].

As set indicators it is sufficient to establish: indicators of production volumes of products necessary to the society, funds of material resources that are in short supply; limits on labor resources (in regions where there is a shortage of labor), allocations from the state budget for capital investments, and also limits on construction and installation work performed by the contract method; economic normatives for the utilization of the collective's income for wages, deductions into the fund for social and cultural measures and housing construction, development, the reserve fund, and also deductions

of the higher organization and deductions for contributions from the collective's residual income into the budget. Additionally, it is necessary to establish the normative ratio between the increase in productivity and the average wages.

And there is no longer a need to establish such indicators as the average reduction of the norm of expenditure of individual groups of material resources, the limit on material expenditures and the maximum level of expenditures per ruble of commodity output. Since all of the savings on material expenditures and wages remain at the disposal of the collective and all of their overexpenditure is subject to reimbursement from their own incomes, the enterprise will manage in such a way that, with the existing labor resources and the allotted material resources, it will fulfill and overfulfill the plan for the volumes of production and deliveries of products. Working poorly or even being average is simply disadvantageous to the collective and its management, and it will be advantageous to search for ways that make it possible to reduce expenditures of resources on products and to improve their quality.

There is no need to centrally divide up the overall wage fund into two parts: the fund for wages and the fund for material incentives. They both have the same sources and the same final purpose, and they are the collective's share of the national income that is distributed according to labor. Highly effective labor should be stimulated by all the earnings and not just by the material incentive fund. It is possible to allow the enterprise to divide the wage fund into these two constituent parts.

Under current conditions the wage fund depends only on the gross results of the activity of the enterprise--the volume of commodity and normative net output. Let us say that an enterprise (see table) has overfulfilled the plan with respect to this indicator as well as for product sales by 5 percent. If the adjusted coefficient of payments for wages is 0.8, the collective will receive 4 percent more wages, in spite of the fact that it has utilized its resources poorly. Even if the material incentive fund has been reduced by 10 percent because of overexpenditure of these, the overall volume of funds for wages would increase by 3 percent since on the average the payments from the material incentive fund comprise only one-10th of the wage fund. Since nine-10ths of the payment for labor--the wage fund--depends only on the gross result (the volume of products produced) and only one-10th depends on the effectiveness of the utilization of resources, the following situation originates and is stimulated. The main thing is to achieve the "growth" and then the wages will be ensured, and the effectiveness and high-quality work are only an additional source of the wage fund. This is one of the reasons for the slow changeover to the intensive type of reproduction. The proposed system eliminates this.

It is necessary to establish the normative ratio between in the increases in labor productivity and the average wages because of the need to observe proportionality between the overall volume of monetary incomes of the population and the coverage of these. With the increase in productive forces the number of workers in the nonproduction sphere is increasing under socialism more rapidly than the number of workers in the sphere of material

production is, and the public consumption funds are increasing at a greater rate than wages are. As a result, the share of the consumption fund expended for these purposes is increasing more rapidly than that proportion which is realized in money and paid to workers in material production. Thus in 1970 through 1984 the proportion of workers in the nonproduction sphere in the overall number increased from 22.9 percent to 26 percent, and the public consumption funds per capita increased by 93 percent while the average monetary earnings of workers and employees increased by only 52 percent.³

Under these conditions how does one provide for balance between the money that is paid and the commodities? It is necessary to have more rapid growth of the productivity of public labor as compared to the average wages of workers in material production. Consequently, for the majority of enterprises, with the help of this normative, we should make sure that the rates of increase in productivity are greater than the rates of increase in average wages.

If one establishes for the enterprises the limit on the number of workers, the wage normative and the normative ratio between increase in productivity and average wages, there is no need to establish the indicator of productivity for them. Today the planned productivity of labor is predetermined by established assignments for the volumes of production and the limit on the number of personnel. When established at a different level which is not coordinated with these indicators it is either impossible or it is too low. But if one applies this system of normatives for the distribution of earnings, the enterprise becomes economically motivated to increase labor productivity in all ways: after all, this increases the residual income for the collective. Under these conditions there is no need to establish the indicator of labor activity, the more so since the established normative ratio between the increase in productivity and the average wages will make it possible to observe national economic proportions.

Along with the established normatives and indicators, there is some point in giving the enterprises calculations from the higher organization concerning the technical and organization of development of production and indicating their effectiveness, submitting normatives for the utilization of production capacities, expenditures of material and labor resources, and so forth. In terms of calculation the indicators that are submitted, on the one hand, serve as a confirmation of the substantiation of the assignments for the established indicators and, on the other, a reference point, recommendations for the enterprises in the area of the introduction of the achievements of science and technology, improvement of production, its technical reequipment and so forth. They will not be realized only when the enterprise finds more advantageous ways of achieving the planned final results. At this time "underfulfillment" is advantageous for the society.

Work According to the Residual Principle of Formation of Income

Under the conditions of the system of incentives for production that is being considered one overcomes more completely than heretofore the shortcomings of cost-accounting debt are brought about, in particular, by transferring to a socialist enterprise methods which are effective only in a system of commercial accounting. There all deviations from the socially necessary level

of expenditures of material, labor and financial resources determined by the market are reflected in the amount of profit. Since the owner is a capitalist, he is the one who "gains" and/or "loses." Profit is the main stimulus for his activity and loss means bankruptcy, forfeiture of capital, or the demotion from the class of capitalists to less privileged segments of society.

The owner of the profit from the state socialist enterprise is the entire society. Therefore the workers and managers of the enterprise when there is an increase or decrease in profit "gain" or "lose" only as members of the entire society, that is, extremely insignificantly if the deviations from the socially necessary level of utilization of resources are reflected only in the profit and not on the wages or income remaining at the disposal of the collective. It is no accident that all steps that have been justified in the area of economic stimulation of production--the creation of the director's fund, economic incentive funds, the large-scale economic experiment--have included measures for increasing that share of the savings on resources which remains at the disposal of the collective (above all--wages) and measures for making reimbursement for overexpenditure of resources from income remaining at the disposal of the collective (mainly from wages). The proposed system is the logical culmination of the changeover to complete reimbursement for savings or overexpenditure of resources from the income remaining at the disposal of the enterprise. This approach leads to the measure of material incentives and material responsibility of the collective which, in our viewpoint, determines complete cost accounting. The need for the latter was indicated at the July (1985) conference of the CPSU Central Committee regarding questions of accelerating scientific and technical progress.

Today the residual principle for the formation of income remaining at the disposal of the collectives and their wages is being applied as an experiment only at the Tbilisi Combine for Bent Wood Furniture. The incomes of the labor collectives in Bulgaria have been formed according to this principle for several years now.

This objection can be made against the residual principle for forming income: what happens if suddenly the collective or part of it is left without any wages? Of course, it is possible to reduce the wages only for the party who is guilty of overexpending resources, and not by more than the amount of the overexpenditure. As a rule, a worker is not to blame for the poor operation of an enterprise. We have productions which from year to year fail to fulfill the plan and overexpend resources. Most frequently they are organized in such a way that at the beginning of the month the workers are idle and at the end of the month they work overtime. As a rule, they are in no hurry to introduce the achievements of scientific and technical progress here either. This means that there is some point in reducing the wages for the managers and engineering and technical workers of these enterprises. And if the state establishes that some of their earnings should be used to make reimbursement for the overexpenditure of resources for which they are to blame, this can only be fair.

If the overexpenditure is more than that which can be legally exacted, it should be made up for from the reserve fund of the enterprise in the higher

organization. Then one evaluates the level of economic leadership of the enterprise and clarifies the job position of the managers. An effective measure for increasing their responsibility is to deprive them of their bonuses for failure to observe national economic interests.

FOOTNOTES

1. Author's calculation using data from the USSR Central Statistical Administration.
2. Author's calculation using data from the USSR Central Statistical Administration.
3. "The USSR in Figures in 1984," Moscow, "Finansy i statistika", 1985, pp 33, 179.

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PROBLEM OF UNMARKETABLE GOODS DISCUSSED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 1, Jan 86 pp 18-33

[Article by A. M. Petrov, group leader of Giproavtoprom (Moscow): "How To Dry Up the Flow of Unmarketable Goods"]

[Text] The draft of the Basic Directions for the Economic and Social Development of the USSR During 1986-1990 and the Period Up to the Year 2000 which was presented for discussion at the 27th CPSU Congress contains an elaborate program for the development of the production of consumer goods. It envisions satisfying more fully the multifaceted demands of the population for fabrics, clothing, footwear, and goods for cultural-domestic and household purposes. It is necessary to provide for their manufacture and sale in an assortment that corresponds to the demands of various groups of the population. It will be necessary to essentially improve the quality of items and to increase their technical and aesthetic level as well as their reliability in operation. The tasks earmarked by the 27th CPSU Congress will require new efforts from us to eliminate the flow of goods for which there is no demand.

Material Responsibility for One's Activity

The problem of improving the quality of consumer goods (TNP) depending on the demand is not a new one. It appeared when we had basically solved the problem of providing the people with the required quantity of necessities. Further development of the production of consumer goods logically had to proceed in the direction of improving their quality and their consumer properties, that is, their social usefulness. And some strides have been made in this direction. But there are also significant reserves here. Or more precisely there is one reserve which, in my opinion, is the main one. This is the economic interest of specific producers, truly effective economic incentives for enterprises that produce TNP to achieve good final results of their economic activity. And it stands in clear contradiction to the existing practice of planning. In the plans all the suppliers are assigned to the consumers; moreover, the lists are fairly detailed: to whom, which products, in which quantity and by which deadlines they must be delivered. Such detailed regulation of production and deliveries is far from always necessary. It is more or less substantiated in branches that produce producer goods,

since here it is possible to guarantee their complete production consumption (even poor-quality or obsolete items), thus providing for a balance between production and consumption.

With respect to TNP's the picture is somewhat different. Here planning can far from always actually (and not just on paper) balance the production of TNP's with the consumption. Even if the production can be more or less planned, the same can not be said about consumption (let us clarify that we are speaking only about final consumption, deliveries to the intermediate units of the sphere of circulation--wholesale and retail trade are not taken into account). One cannot say to the consumer, that is, the consumer in the store: "Help us to fulfill the plan for commodity turnover and purchase this or that commodity that is stockpiled!" It is not hard to guess what the consumer would answer.

When there were not enough goods trade sold out practically everything that they had on the counters. But at the present time, when the market is saturated, the consumption of TNP's depends to a considerable degree on the demand for them which is determined, among other things, by their quality and the fluctuations of fashion. No kind of planning can satisfy the demand for the entire list of many thousands of products with the millions of varieties of them. And even if one were to say that scientific planning could reach such heights, that it would be able to determine precisely the consumer demand (which is not very probable in the near future), this alone would not be enough to actually satisfy this demand. To do this planning absolutely must go hand in hand with the corresponding economic stimulation, without which the very best plans will inevitably be violated, especially with respect to quality.

The party economic policy today envisions expansion of the economic independence and responsibility of enterprises, and this should lead to a redistribution of the functions between planning and economic stimulation.

In our opinion it would be expedient for planning as the leading unit of management, just on the basis of the public demand, to establish the minimally necessary volumes of production of a particular kind of product (on the most enlarged product list), and the economic levers should determine the specific models of this product and the maximum volumes of their output necessary for satisfying the consumer demand and obtaining the maximum profit.

A barrier should be raised on the path of unmarketable goods and the quality of domestic goods can be raised to the level of the world market only through strengthening the economic levers in the economic mechanism. Strengthening these means to make the incomes of the manufacturing enterprises, and mainly wages of the production personnel, more strictly dependent on the final national economic results of their work.

As was noted at the April (1985) Plenum of the CPSU Central Committee, "a good deal will have to be done for more complete satisfaction of the demand for industrial goods and services, to saturate the market with the necessary products, to improve the assortment of the goods that are produced, and to give greater flexibility to the price system...." Before beginning practical

implementation of this task it is necessary to resolve a principle issue: what should be considered to be the final national economic result, the criterion for evaluating the work of the enterprise that delivers TNP's to the retail trade network? At the present time this result is considered to be the fulfillment of the plan for the production and sales of products by the trade enterprises. Life, however, has shown how erroneous this criterion is: many enterprises fulfill and overfulfill the plans for sales, but their products are not in demand and they pile up in the warehouses. Simple logic provides an answer to the question of selecting an answer to a criterion: "The final result of the work of the manufacturers of the TNP's should be determined by the consumer in the store," that is, the incomes of the industrial enterprise will depend not on the fulfillment of the plans or even on delivery agreements, but on the sales of the items in the retail trade network. In other words, it will bear material responsibility for the final results of its economic activity.

How To Influence the Manufacturer

In order to make sure that the socialist enterprise provides for high quality of its products it is necessary for it to bear material responsibility for the final result of its work, although not in such a severe form as under capitalism. This kind of responsibility is not envisioned in the existing economic mechanism in spite of the fact that on the retail market there is a competition of commodities. Indeed, if the consumer has the opportunity of selecting even from two commodities of the same time this means that these commodities are "competing" between themselves. But this competition takes place apart from their producers. Why does this happen?

The trade organization can actually only warn the supplier of a drop in the demand for a commodity. As a rule, it cannot take a rigid position and reject this product because of two reasons. First, the two partners are joined together by a unified national economic plan in volume indicators and when this plan is not met both of them are penalized both administratively and materially (this has nothing to do with market conditions). Second, trade always has an "ace in the hole" in the event of underfulfillment of the plan for commodity turnover--specially envisioned subsidies from the state budget. All this taken together keeps trade from being completely principled and actively influencing industry, motivating the enterprises to produce high-quality goods. Even when there was an especially egregious case (it was reported at the December [1983] Plenum of the CPSU Central Committee) and the trade organizations refused to purchase immense masses of unmarketable goods from industry, their principles extended to only one-third of the annual sales or 0.3 percent of the country's annual commodity turnover (1 billion rubles with a commodity turnover of \$300 billion).

It would certainly not be a mistake to think that the material responsibility of the manufacturer of TNP's for the sale of their products in the retail network is the only decisive condition for mass output of goods which are in demand among the population. To ignore this and try to raise the overall level of quality of TNP's using traditional methods of influencing industry means self-deception and a waste of time. All other factors involved in improving quality--counterplans, socialist commitment, all kinds of one-time

campaigns--cannot have a decisive significance and can only play an auxiliary role in conjunction with the main factor. If one does not make the producer of the TNP's responsible "out of his own pocket" for the final result of his economic activity, the results which are needed will not be obtained.

In the economic experiment that is now being conducted in light industry an attempt has been made to make the incomes of the supply enterprises dependent on the quality of the products they produce. The enterprises have been permitted, within certain limits, to establish, in conjunction with trade, the retail contract prices for batches of goods with the index "N." Is the effect from this great? Material responsibility for the final result means both additional profit for the manufacturer for the output of goods with higher quality and losses for the output of unmarketable goods. In the experiment only the first element of material responsibility is actually in effect, and then in extremely inflexible form since the contract prices are stable and do not always reflect the retail market conditions. Under these conditions one cannot speak about evaluating the work of the enterprise in terms of the final results since the experiment has no final system of material responsibility for these results.

In order for the incentives to be really effective it is necessary for them to meet the following two conditions:

- 1) they must include additional remuneration for the output of products which are in demand and losses for the output of unmarketable products;
- 2) they must encompass a considerable part of the wages of the production personnel.

The remunerations and losses of the enterprises should, naturally, be within the framework of the wholesale prices for their products: any external sources of incentives or penalties for production activity would be illogical and unnatural. And the price of the enterprise, as we know, consists of the production cost and profit. But the production cost (with rare exceptions) cannot be involved since the necessary expenditures on production must be fully returned to the enterprise in order to resume the production cycle (we shall leave bankruptcy and halting of production to capitalism). This means that only the planned profit is left for economic influence on the enterprise. And the influence consists in increasing or decreasing it which, in turn, causes analogous changes in the wholesale and retail prices since the profit of the manufacturing enterprise is a constituent part of these. And changes in prices, as we have already said, should reflect the market conditions, that is the changes in the consumer demand for the goods.

Prices and Markdowns

The system of variable or market prices, in my opinion, could be placed at the basis of economic incentives for industrial enterprises that produce TNP according to the final results of their work and also the entire system of economic ties between industry and trade, augmenting and improving their cost accounting. In order to ensure effective economic incentives it is important for the market price to satisfy the following two conditions:

- 1) it must not be rigidly fixed, but variable, deviating from the cost of the commodity depending on the changes in the market conditions;
- 2) it must show not only expenditures of labor on the production of the goods, but also the social usefulness which is reflected by the market conditions.

Under the conditions of developed socialism inflexible retail prices (with the exception of prices for necessities) are a source of appreciable material losses for the society. These prices now have only one merit--it is easy to plan with them and to account for the fulfillment of plans. But this convenience is too costly in the final analysis. Indeed, if a commodity is sold at a price less than the market price the state fails to receive the difference in the price which remains in the sphere of circulation either with the consumer or with the intermediary-speculator. If the commodity is sold at a price higher than the market price, then the demand for it declines and its stockpiles, being, as it were, a loss in pure form. Under these conditions the market price becomes a necessity since it makes it possible to promptly catch possible losses and put them in the state pocket. But this is only one of the tasks of the market or commercial price. Another task and the main one is to put the manufacturers of TNP's in conditions so that it will be advantageous for them to produce products for which there is a consumer demand and extremely disadvantageous to produce unmarketable ones. This can be achieved only with a market price, extending the chain of material incentives from the retail market to the producer of the commodity. "The noncommercial price policy weakens market control over production."¹

Under the proposed system the supply enterprises that produce consumer goods will not immediately obtain from the consumer or, so to speak, the recipient of their products--the trade organization--the full value in wholesale prices of the products they have delivered. In the beginning it will be enough to reimburse them for the necessary expenditures on production or the production cost, which is quite enough to resume the production cycle. And the supply enterprises will receive profit only after all of these products have been sold through the trade network, remaining at the disposal of the trade organizations as a guarantee during this time.

If the sales of the goods are slow or come to a halt then the store immediately marks them down according to the normatives that have been established for the given commodity. It is not difficult to verify the need for marking them down: the controllers (who are representatives of the supplier, trade and an intermediary--for example, the local price-setting agency) need only visit the trade premises a couple of times and be convinced that for a certain amount of time the product has been out for the consumers to see and have not moved. After the markdown the goods should be sold in the same place, without being transferred at all, and in no case should they be sold through a special division or store for marked-down goods, which have the negative psychological effect on the buyer.

Of course the structures of the prices of various goods differ and therefore in each specific case the procedure for marking down items will be different.

But in each case one law will be in effect: any commodity that comes in for retail sales should be sold, and there should be no overstocking, even if it goes at the very lowest price.

Marking a good down at the expense of the profit of the manufacturing enterprise and the trade organization can be called a "policy of the whip" with respect to them. But the "whip" in and of itself is a one-sided incentive and therefore it is logically expedient to augment it with a "carrot." We have in mind increasing the retail prices in those cases where the produced commodity is in greater demand among the consumers. The price should be increased within the same range as the commodity as marked down, that is, the total of the profit of the two partners plus the turnover tax if there is one: at first this should benefit the manufacturer and trade at the same time (so that they both will have incentives), but with an advantage for the manufacturer, and then, if the demand for the commodity does not decline, the advantage should go to the state, that is, the turnover tax should be increased. Subsequently, as the retail market is saturated, the price of this commodity will decrease by means of its being marked down.

The plan presented above is applicable only for direct ties between industry and trade, which are still rare. This plan will not be effective through the wholesale area of trade, since the wholesale base is physically incapable of carrying out operational accounting in changing prices for all of the mass of commodities that go through it to be sent on to dozens of trade points in other oblasts and republics.

The situation, however, is not hopeless. The USSR Gosplan has considered one of the variants for the formation of income of enterprises that produce TNP's depending on the final results of their work--with the help of the so-called "system of labels" which consists of the following. To each manufactured item that goes outside the gates of the enterprise one attaches the labor of the manufacturing enterprise with an indication of the wholesale price. After retail sales of the items the labels go to the Gosbank division which, precisely in keeping with this, transfers the money to the account of the manufacturer. The merit of this system is obvious--automatic accounting for sold goods and the elimination of the need for cumbersome bookkeeping in trade. The shortcoming is also obvious--lapses of time that are too long between the dispatch of the goods and the receipt of the money for them, and also the direct losses as a result of overstocking. It seems to me that the solution is to combine the plan presented in this article with the "label system." The innovation would be that the labels should indicate not the wholesale prices, but only the planned profit per unit of the item. In this combined plan the wholesale base could be paid along with the supplier according to the preliminary prices in the amount of the production cost of the products that are dispatched and the store and the base could be paid according to the production cost plus the sales markup. The wholesale base would thus be reimbursed for its expenditures along with profit and would not experience the subsequent fluctuations in the prices. Further, when selling the commodity to the population at retail prices, the store could earn its trade markup and the profit of the manufacturing enterprise by transferring the labels for the latter to the Gosbank as they are sold. Then all one need do is make sure that the labels are not lost or hidden somewhere. The

procedure for changing prices depending on the market conditions would remain exactly as it is for direct ties between industry and retail trade: the only difference would be the distance of the business trips for representatives of the supply enterprise.

The Effectiveness of the Economic Lever

As we already said, the manufacturing enterprise receives its profit (reduced or increased) after complete sales through the trade network of the products that have been delivered (this can be either an individual batch of the commodity or products delivered over a short planning period--say, a month or a quarter). But the effectiveness of economic incentives, as we said above, depends not only on the fluctuations in profit, but also on the coordination of the wages of the production personnel of the manufacturing enterprise with the final sales of their product. But not all product goes for additional payment for labor, but only the part that goes into the material incentive fund (FMP). Therefore the question of the effectiveness of incentives here depends on the proportion occupied by this fund in profit, and the main thing--the ratio between the FMP and the wage fund.

At the present time, as we know, the material incentive fund comprises a miserly proportion as compared to the wage fund of the enterprise: at best their ratio is 1:10. Such an addition to their earnings could hardly motivate the production collective and the management of the enterprise to restructure production in order to change over to new kinds of products following the fluctuations in consumer demand. This process could be activated better by a higher ratio--no less than at least 1:1. This could be achieved in the following way.

Material incentives for labor collectives find their practical expression in the payment of monetary bonuses: from the wage fund--for the fulfillment of planned assignments, and from the material incentive fund--for the results of the work.

Since we are using as the main criterion for evaluating the work of the enterprise the sale of its products in retail trade, bonuses for the fulfillment of plans for production and deliveries lose their meaning and the role of remuneration according to the final results of the work, naturally, increases just as does the role of the FMP--the main stimulator of economic activity. In order to increase its stimulating role in practice, it is obviously necessary to transfer all bonus money from the wage fund (if there is any there) to the FMP, retaining the former only as the sum of wage rates and salaries. Additionally it would be expedient to augment the FMP from the so-called "free residual profit" and, in the final analysis, eliminate it as a rudiment which lacks any economic meaning. Then it would be expedient to establish payments into the budget in the form of a normative from the actual profit which, with successful economic activity, will always cover the planned amount. By acting in this way it is possible to achieve the desired ratio between the FMP and the wage fund which guarantees high effectiveness of the new system of economic incentives. The greater the amount of this ratio, the stronger the effect economic levers will have in the economic mechanism. And there is no need to fear that with successful economic activity of the

manufacturing enterprises the earnings of its production personnel and the personnel of the trade organization that sells its products will increase too much. For it is much worse if there is a great savings on the wage fund but the products that are produced are not sold in the retail trade network.

In practice the wages of workers at the manufacturing enterprise will be as follows: the payment of the salaries and wage rates monthly as usual, and at the end of each of month, quarter or semester or simply as the delivered batches of items are sold--the payment of large bonuses from the material incentive fund for the final results of the economic activity. Here if the wages of the workers depend on the economic decisions made by the management of the enterprise, since they are simultaneously both the producers and the consumers of their products in the broad sense, they will check more carefully on the correctness of their decisions. Thus the participation of workers in management will become more realistic and effective. This generally is the way the system of economic incentives for industry that produces TNP's will look.

Operational Space for Production

One more important aspect. Flexible reaction on the part of industry to the fluctuations in demand is possible only when the enterprises have reserve production capacities and an experimental base. In the experimental shops it will be possible to develop experimental models of new products, and with the reserve capacities--to put into mass production those of them which have proved themselves well in retail trade, with a simultaneous reduction in the output of outdate items for which the demand is declining. In order to have these reserve capacities it is necessary to change somewhat the system of planning of industrial enterprises or planning their production activity (which was already discussed above). Now the projects for the enterprises and, correspondingly, their plans are developed in such a way that the production capacities and the areas are loaded by 100 percent (the fact that this does not always turn out to be actually the case is another issue). This places the enterprises in a difficult position when changing over to new products or production technology. And the currently existing system of economic incentives--with payment for funds and evaluation of work according to indicators of output-capital ratio and capital-intensiveness of products--forces the enterprises not to have "surplus" space or equipment. The solution to this problem apparently consists in envisioning reserve capacities in the drafts of the plans and not loading these capacities with mandatory production plans: they will be loaded under the influence of the economic levers in the economic mechanism.

Without Fictional Profit

We can anticipate the objection: "How could the state do without the planned deductions from profit and turnover tax if the enterprise's products are unmarketable or are marked down?"

Let us try to figure this out.

Let us say that with the existing economic mechanism the supplier enterprise has sent the trade organization a batch of its goods and has received their full value in wholesale prices, including profit. But the trade organization has been unable to sell these items because of a lack of a demand for them and they have piled up in the warehouses. For the sake of simplicity let us assume that these items were not used in any way and were destroyed. Then it is obvious that the products that were produced but not consumed by the society are fictional products since it makes no difference to the society whether they exist or not. And this means that the profit obtained from producing them and the deductions from this into the state budget are also fictional (as, incidentally, are the wages) since they are not backed up by any material values. One asks why the state needs such deductions. It is no accident that many state and public organizations and groups of the population who have considerable funds at their disposal are not able to realize them because of the shortage of various kinds of material resources or consumer goods. The root of the disproportions is the "pumping up" of the state budget with deductions from fictional profits and fictional taxes on "turnover" of unmarketable goods. So does the state need such "funds"? What is the point in allotting them for various needs of the society if they are not backed up by anything material? From the standpoint of common sense it would be much to be preferred for the state budget to be somewhat less but real.

Moreover, if the industrial enterprises are really interested in increasing their profit the majority of them, by increasing the output of marketable goods and, correspondingly, their profit, thus increase also the sums of real deductions into the state budget. This in the final analysis compensates for and covers the underfulfillment of the plans for profit at those enterprises which are experiencing temporary difficulties with selling their products.

And, finally, is the proposed system of economic incentives according to the final results of economic activity capable of actually solving not only the tactical problem--providing for 100 percent sales to the population of all TNP's produced in the country, but also the strategic problem--the overall improvement of the quality of domestic goods?

It is our firm conviction that it can, and here is why. The fact is that with the existing economic mechanism there is the possibility that selling the population commodities of mediocre quality. The industrial enterprise, when it sells its items immediately at full wholesale prices has a wait-and-see attitude about their subsequent destiny (after all, the money has been received): just so long as they are not altogether unsuitable and removed from production. The store is not very interested in actual acceleration of commodity turnover either since if the commodities are overstocked it receives the aforementioned subsidies from the state budget. So it has the opportunity of offering the consumer goods that are not very good for a fairly long period of time, holding out until they buy them.

But the proposed system of economic incentives according to the final results, in the event that the products are unmarketable, literally "takes by the

throat" both the manufacturer and trade. The former, having received only part of the wholesale price in the amount of the production cost of the delivered products, is waiting until the second part arrives--the profit, which includes a considerable part of the wages. And the latter, not having received any subsidies from the state budget, of course, is forced to sell the overstocked goods rapidly, marking them down according to the corresponding normatives. Both partners sustain losses here and automatically begin to sound the alarm, and the enterprise is forced to change over rapidly to the output of new products which are in demand.

It is possible to work out the details of such an economic mechanism only in actual economic situations, under the conditions of the economic experiment. In no case should this be large-scale, since the restructuring of the existing economic mechanism is great and this means that the risk of unexpected consequences which can be discovered and taken into account during the course of the experiment is also great. The experiment could be limited to one (or several) independent industrial enterprises and their largest trade partners. Such an experiment would make it possible to test more boldly the proposed plan of economic ties and, if necessary, to change it. The experiment would help to respond to an important issue: developing in practice the system of distributing bonuses from the FNP within the labor collective of the industrial enterprise.

FOOTNOTE

1. Novozhilov, V. V., "Voprosy razvitiya sotsialisticheskoy ekonomiki" [Questions of the Development of the Socialist Economy], Moscow, "Nauka", 1972, p 70.

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CSO: 1820/60

ROLE OF CONSUMER PRICES DISCUSSED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 1, Jan 86 pp 33-43

[Article by D. M. Kazakevich, doctor of economic sciences, professor, Institute of Economics and Organization of Industrial Production of the Siberian Branch of the USSR Academy of Sciences (Novosibirsk): "Toward Improving Consumer Prices"]

[Text] The development and realization of principles of scientifically substantiated price setting is one of the most important areas for improving the economic mechanism in the modern stage. "It is necessary to radically improve price setting so that it will contribute to successful implementation of the economic policy."¹ This pertains to both production and consumer prices.

The production prices include: the prices at which industrial enterprises sell their products to state and cooperative production enterprises (means of production) or state and cooperative trade enterprises (objects of consumption); procurement prices for agricultural products sold by the kolkhozes and sovkhozes; estimated products of the construction industry; prices and rates for cargo shipments and production services. Consumer prices are the final prices for products and services that are sold to the population.

The peculiarities of state planned regulation of consumer prices ensue from their interconnection with such areas of economic policy as the implementation of programs for fuller satisfaction of the demands and a higher standard of living for the population, the maintenance of constant balance between the amounts of production, retail commodity supplies and services for the population and monetary income of the population, the influence on the structure of consumption and the development of the art of intelligent consumption. Improvement of consumer prices is exceptionally important not only from the standpoint of raising the standard of living of the people, but also as a factor in material incentives for more productive labor, the strengthening of cost accounting [khozraschet] and, in the final analysis, greater effectiveness of public production.

In spite of this, not enough attention is being devoted to questions of improving consumer prices in scientific developments in price setting and in the economic press. It is worthwhile discussing, in particular, the question of the expediency of retaining in the future the existing prices which do not cover socially necessary expenditures on production for such food products as bread, groats, flour items, and meat and dairy products. A considerable difference exists between the procurement prices which reflect expenditures on production and agriculture, on the one hand, and the final consumer prices for these food products, on the other. For example, in our stores meat is sold at a price that is one-half to one-third the amount of the expenditures.²

The regulation takes place using a special account in the USSR Gosbank. The money from this account covers all expenditures on the procurement of agricultural products, including: payment for the products of kolkhozes and sovkhoses according to zonal prices (plus increments for overfulfillment of the plans for procurements); expenditures of procurement organizations, including transportation expenditures; and profit of procurement organizations. This account receives all income from the sales of agricultural products by the procurement organizations to the enterprises of the processing industry at wholesale prices (unified or differentiated). The negative difference between wholesale prices and procurement prices combined with expenditures on procurements revealed by comparing the sum of income with the general bank account and the sum of expended funds is covered by subsidies from the state budget. The sums of these subsidies are transferred into a special bank account.

The procurement functions can also be carried out by enterprises of the processing industry themselves, but this does not change the overall policy for the regulation of prices through a special bank account. For example, when live cattle come into the meat combine they are paid for at zonal procurement prices. From the meat combines the meat products go for further processing or consumption at prices which are based on retail prices minus trade rebates. The difference between these and the procurement prices for cattle is covered by subsidies from the state budget using this same special account in the USSR Gosbank.

The annual state subsidy for making up for the difference between the production outlays and the earnings from sales at retail prices of meat, dairy and certain other consumer products, according to figures adduced by N. T. Goushkov at the beginning of 1980, amounted to 25 billion rubles.³ Since that time it has increased significantly since in keeping with the decree of the May (1982) Plenum of the CPSU Central Committee, beginning 1 January 1983 procurement prices were increased for cattle, milk, grain, sugar beets and certain other agricultural products without changing the retail prices for the food products and with the state allotting an additional 16 billion rubles a year for these purposes.⁴ For meat alone the subsidy now amounts to almost 20 billion rubles a year.⁵

The retail prices for grain, groats and flour items and sugar have not changed in the USSR in 30 years, and meat and dairy products--23 years, although the expenditures on the production of these basic products have increased.⁶ The relative prices for grain in the Soviet Union are considerably less than in

other socialist countries and even lower (one-fourth to one-fifth) as compared to capitalist countries with the most developed agricultural production. The prices of meat and dairy products are also significantly lower.

Stable prices for food products have advantages in the sense that they provide all groups of the population with the opportunity to purchase necessities at these prices. Consequently, retaining stable prices while there is a steady increase in monetary incomes of the population (the average monthly earnings amounted to 185 rubles in 1984 as compared to 71.8 rubles in 1955 and 86.7 rubles in 1962⁷ when the prices for food products changed last) serves as a factor for raising the standard of living of all workers. This is why the last party congresses have insisted on the need to saturate the market with consumer goods while maintaining a stable level of state retail prices.⁸

There is no question that the best way of bringing consumer prices for food products in line with expenditures on their production and balancing supply and demand is to reduce outlays and to increase the production of food products in amounts that would satisfy the effective demand for them with the existing level of monetary incomes of the population. But this would require a large amount of time and economic conditions to which, in our opinion, maintaining the current prices for food products without any changes does not correspond.

M. S. Gorbachev, speaking at the conference of the party and economic aktiv in Tselinograd and summarizing the numerous letters from workers to the CPSU Central Committee those cases of a barbaric attitude toward bread, noted, that here "is something to think about both in the labor collectives and in the central agencies."⁹

Economic science, of course, should not stand on the sidelines and is obligated to work on recommendations for solving this problem.

In our opinion, there are not only advantages, but also shortcomings to maintaining the current stable prices for the main food products. Bread accounts for 2-4 percent of the cost of a meal in a workers' dining room while in a restaurant it accounts for 0.5-1 percent. As long as these prices are insignificant an immense quantity of bread that is paid for will inevitably be transformed into wastes in public catering. Apparently no less if not more of the bread is lost in the country in homes since the prices for bread have little effect on the budget of the majority of families, especially as compared to the prices for clothing, footwear and household goods. The Institute of Psychology of the USSR Academy of Sciences conducted a questionnaire of the population of various cities and villages and it became clear that 92 percent of those questioned judge the social value of any commodity, including bread, in terms of its retail price.¹⁰ This connection has become firmly entrenched in the social psychology. Symbolic prices largely stand in the way of reducing losses of bread and they harm the moral education of the people in a spirit of a thrifty attitude toward this most important food product.

A significant quantity of baked bread, groats and flour products, when the prices remain low, are fed to cattle and poultry maintained by the population

on private farms, and even by the kolkhozes, in spite of the existing legal sanctions against this phenomenon. This is economically advantageous even if one compares state retail prices for these products and, say, the prices of meat on the unorganized market.

Here speculators retain the possibility of gaining unearned income because of the price differences, that is, one of the channels for uncontrolled outflow of some of the national income remains open, providing a basis for uncontrolled circulation on the so-called black market.

The low state retail prices for meat and dairy products stand in the way of achieving balance between supply and demand, and they artificially maintain and deepen the partial shortage of these which to a considerable degree reproduces itself. When low prices for the main food products are maintained for a long period of time and the monetary income of the population increases the effective demand increasingly shifts to other goods--high-quality fashionable clothing and footwear, high-quality furniture, motor vehicles and so forth, giving rise to a shortage of these goods and stimulating an increase in their prices (income from these increases partially covers the immense state subsidies which were discussed above). As a result, there are even greater distortions in price setting, and individual high-quality goods gradually become inaccessible to categories of workers with relatively low incomes, in whose interests the low prices on food products are retained.

The general availability in the stores of all food products of prices that make up for the expenditures on their production as well as other goods for the population and a balanced market--these constitute one of the powerful factors in maintaining the society's economic and moral health on a high level, strengthening labor discipline and material incentives for increasing labor productivity, strengthening the authority of the ruble and the country's monetary system, eliminating the need for socially unjustified administrative distribution of part of the objects of consumption among the population, strengthening cost accounting in production and deepening the system for savings through the economy, and more completely eradicating elements of the black market, speculation and similar phenomena which are alien to the nature of the socialist society. And maintaining a shortage of some of these items of consumption acts in the opposite direction.

The question we are touching on here has already been raised by a number of authors. Thus V. A. Volkonskiy wrote: "The mechanism of budget regulation of the differences in prices (the conclusion follows from the mention of the difference in prices for meat and dairy products--D. K.) and the actual deviations in prices from the levels of socially necessary expenditures cannot be considered a necessary or permanent element in the socialist economic systems since they do not correspond to the principles of maximum effectiveness of management."¹¹

We are not speaking about refraining from a policy of stable prices for the main objects of consumption and changing over to constantly changing prices. But it would be inexpedient to conduct a one-time ordering of prices for objects of consumption and their structure in order to have better stable base prices by eliminating the shortcomings in the existing ones. It would be

expedient to raise prices for objects of consumption in those cases when they do not compensate for socially necessary expenditures on their production and delivery to the consumer; and to eliminate state subsidies on retail prices and to utilize all of the money released from this in order to increase age rates and salaries of workers and also pensions, stipends and other incomes of the population. In the budget institutions these funds from the state budget can be used directly for increasing salaries. And in the cost-accounting units, where the higher wages will be reflected in the production cost of the products, they will transfer into the budget a correspondingly smaller amount of the profit, which will mean the indirect utilization of the released budget money from subsidies in order to increase wages.

Increasing the wage rates and salaries of workers, pensions and stipends along with increasing prices by the amount of the released subsidy funds from the state budget, that is, compensating the population for additional expenditures involved in the price increases, means that the standard of living of the workers will not be affected. But subsequently this measure can contribute to raising the standard of living because of its positive influence on the economy.

If necessary, the wage rates and salaries can be increased in a differentiated way, if the measure related to bringing order into consumer prices is simultaneously used in the interests of improving wages.

A one-time measure for bringing order into consumer prices and increasing the incomes of the workers does not contradict the fundamentals of the policy of the party and Soviet state in the area of price-setting and raising the standard of living, and it would have a positive effect on the economy in many respects: the structure of prices for objects of consumption would improve, the contradiction between the prices for interrelated products (for example, bread, groats, flour items and meat and dairy products) would be eliminated, the prices for food products in state and cooperative trade and on the unorganized market would come closer together, and because of the greater balance of supply and demand there would be a process of weakening and elimination of the shortage of a number of objects of consumption and all of those positive aspects of completely satisfying the effective demand of the population, which were discussed above, would begin to appear.

Stability of consumer prices should not be understood as immobility, the lack of any kind of flexibility. After changing over to a new and stable level of prices for objects of consumption, their partial changes caused by the dynamics of expenditures on production, the need to balance supply and demand for individual commodities, and other factors, in all probability, are inevitable. The documents of the April (1985) Plenum of the CPSU Central Committee mention the need to "give great flexibility to the system of prices" of goods and services for the population.¹²

The regularizing of consumer prices should, in our opinion, also affect such an important area that determines well-being as apartment rent. It has not changed in the USSR for several decades now. It is relevant to note that in the resolution of the combined plenum of the Central Committee and the Central Control Commission of the All-Union Communist Party (of Bolsheviks), adopted

on 23 July 1926, which determined the principles for the establishment of apartment rent in the USSR, they particularly formulated the principle of self-payment of residential buildings as an initial point for substantiating the level of apartment rent. In keeping with the decree of the TsIK and the SNK of the USSR "On the Housing Policy" (1928), apartment rent should amount to an average of no more than 10 percent of the wages. The level of apartment rent--13.2 kopecks per 1 square meter of dwelling space, which was increased in 1928 in new buildings to 16.5 kopecks--corresponded to these principles. As of today apartment rent at this level does not correspond either to the former or the latter principle. It does not even cover one-third of the expenditures on maintaining housing, making it necessary for annual subsidies from the state budget an amount of about 6 billion rubles, not to mention the reimbursement for capital investments in the construction of housing, which exceed expenditures on operation many times over. Apartment rent now amounts not to 10 percent, but only 2-3 percent of the wages. Apartment rent in state residential buildings with incomes that have increased over recent years has become symbolic to a considerable degree.

In addition to the advantages, this level of apartment rent also has various shortcomings. With a low apartment rent and a large subsidy from public consumption funds for maintaining housing, these benefits for the population are largely used by that part of the population that is better provided with housing, that is, people with more dwelling space and apartments with a higher level of conveniences (since there is no differentiation of apartment rent depending on the quality of the housing). It would be difficult to assume that it is mainly families with lower incomes who live in the more spacious and well-arranged apartments, which are the subjects of the orientation for the low apartment in the subsidies for housing from the public consumption funds.

Maintaining a low apartment rent that is not differentiated according to the quality of the housing does not contribute to rapidly diminishing the shortage of housing or to eliminating many of the unhealthy phenomena that are related to it. It is no secret, for example, that some of the population is willing to maintain surplus dwelling space while it is in short supply (it is not only a matter of the psychological effect of the phenomenon of the shortage, but the main thing is the difficulty of expanding dwelling space in the future at the time when the need for it arises because of the growth of the family or other reasons), and the deposits for housing, heating, water and so forth have little effect on the family budget.

The shortage of housing and the desire to retain it considerably reduces the mobility of the population that does not contribute to shifting the labor force to newly assimilated regions, which would be advantageous for the country. Holding the state apartments that are occupied in these cases is no better method of solving the problem: the shortage of housing is thus artificially maintained since the families have two apartments instead of one, and frequently instead of settling into the new regions they return to their old apartments in the regions where there is a surplus of labor.

The problem of the low rent for apartments in the state residential supply became even more crucial with the appearance and rapid development of

cooperative housing construction. The expenditures of families on paying for housing in cooperative residential buildings make up for the complete expenditures on the construction and maintenance of the buildings, and they are several times higher than the apartment rent in state buildings. But, after all, apartments and cooperative buildings accommodate the same workers, and there is no rule that in the state buildings the apartments are offered to families with relatively small per capita income and in cooperative buildings--with a relatively larger income. The situation that has taken form does not fully correspond to the policy of social justice that is adhered to in all areas of a socialist society.

Maintaining low apartment rent in state buildings, which is not differentiated depending on the quality of the apartments, and the existence of state subsidies for housing which exceed the income from operating this housing many times over impedes the changeover to true cost accounting in housing and municipal services, and related to this are the shortcomings in providing for proper maintenance of the residential buildings with the money that is spent for these purposes.

The way out of this situation which suggests itself does not require a revision of the policy of the Soviet state regarding the provision of housing for workers in keeping with their constitutional right to housing. It is in line with this fair policy of the socialist state. It would be expedient to use the funds expended in the form of a state subsidy for housing not to retain low apartment rent, but to increase the incomes of the workers so to eliminate their reliance on low apartment rent and payments for municipal services at a level which provides for reimbursing the cost-accounting expenditures for housing and municipal services.

But, it seems to us, there should not be a complete analogy between the redirection of the subsidy and the retail prices for food products. It would not be altogether correct to take the path of utilizing the released funds from the housing subsidies in order to increase wages.

For example, with the released money from the public consumption funds that is now being used for housing subsidies it would be expedient to increase the monetary payment to families with many children in amounts that would compensate for the increased apartment rent and create for them the possibility of maintaining an apartment for a large family.

In a word, in our opinion, it would be expedient to use the released money with the elimination of subsidies for apartment rent in keeping with the programs for the social development of the society through the local soviets of people's deputies. They could be used in keeping with certain rules to render material assistance to some of the families of workers in paying for the apartments that have been granted to them.

Here we are starting from a situation in which all of the housing is transferred to the local soviets and is maintained by municipal housing organizations which report to them on a cost-accounting basis. The changeover to truly cost-accounting methods of management of the functioning and development of the sociodomic infrastructure, like the production

structure, is an important area for improvement of the economic mechanism and is becoming more and more crucial.¹³

It would seem that it would be correct to increase considerably the income into the local budget from profit from all kinds of production units, regardless of their departmental jurisdiction. Local soviets of people's deputies, taking advantage of the right to create enterprises of the production and sociodomestic infrastructure under their jurisdiction, could utilize some of the accumulations formed in them for further development of the rayon infrastructure, including housing construction. If a subsidy is allotted from the unionwide budget for these purposes it should be granted to the local soviets. And they should maintain economic relations with the contracting construction organizations that are constructing the objects of the infrastructure in the regions.

One of the main prerequisites for complete rejection of the departmental principle of constructing and maintaining housing and changing over to cost-accounting basis in its operation is the improvement of apartment rent.

It says in the draft of the Main Directions for the Economic and Social Development of the USSR During 1986-1990 and the Period Up to the Year 2000 that it is necessary "to improve the system of state retail prices and rates and to reflect more fully in them the socially necessary expenditures, the quality and the consumer properties of items and services."¹⁴ This provision is very crucial. The housing and municipal services are among the more important ones. Apartment rent, like prices for objects of consumption, should be improved in keeping with the formulated principle.

FOOTNOTES

1. Gorbachev, M. S., "A Radical Issue of the Party Economic Policy," a report at the Conference of the CPSU Central Committee on Questions of Accelerating Scientific and Technical Progress of 11 June 1985, Moscow, Politizdat, 1985, p 27.
2. See the speech of M. S. Gorbachev at the conference of the party economic aktiv on 7 September 1985 in Tselinograd, PRAVDA, 11 September 1985.
3. Glushkov, N. T., "On the Development of New Wholesale Prices," EKONOMICHESKAYA GAZETA, No 17, 1980.
4. Glushkov, N., "Planned Price-Setting and Management of the Economy," VOPROSY EKONOMIKI, No 8, 1982, p 12.
5. See the speech of M. S. Gorbachev at the conference of the party and economic aktiv on 7 September 1985 in Tselinograd, PRAVDA, 11 September 1985.
6. Ibid.
7. "The USSR National Economy in 1970. Statistical Annual," Moscow, "Statistika", 1971, p 519; concerning the results of the fulfillment of

the State Plan for the Economic and Social Development of the USSR in 1984--announcement of the USSR Central Statistical Administration, PRAVDA, 26 January 1985.

8. See "Materials of the 26th CPSU Congress, Moscow, Politizdat, 1981, p 179.
9. PRAVDA, 11 September 1985.
10. See Yelchaninov, P., "Bread Costs Money," PRAVDA, 24 April 1978.
11. Volkonskiy, V. A., "Problemy sovershenstvovaniya khozyaystvennogo mekhanizma" [Problems of Improving the Economic Mechanism], Moscow, "Nauka", 1981, p 90. See also: Yasin, Ye. G., "Distribution Relations in the Structure of the Economic Mechanism," EKONOMIKA I MATEMATICHESKIYE METODY, 1983, Vol XIX, Issue 3.
12. Materials of the Plenum of the CPSU Central Committee on 23 April 1985, Moscow, Politizdat, 1985, p 14.
13. "Life more and more insistently demands a solution to the problem of dividing up the funds allotted for production purposes and for the creation of the infrastructure (mainly social) among branch and territorial management agencies. The money allotted for the social infrastructure of the cities and villages should be directly designated for the satisfaction of the needs of the workers and, as a rule, transferred to the territorial management agencies" (Mozhin, V. P., "An Efficient Combination of Branch and Territorial Planning and Management of the National Economy," PLANOVOYE KHOZYAYSTVO, 1980, No 3, pp 108-109).
14. PRAVDA, 9 November 1985.

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SCIENTIFIC AND TECHNICAL PROGRESS IN SIBERIA DISCUSSED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 1, Jan 86 pp 44-72

[Report from member of the Politburo of the CPSU Central Committee, chairman of the RSFSR Council of Ministers V. I. Vorotnikov: "The Development of Productive Forces in Siberia and Tasks of Accelerating Scientific and Technical Progress"]

[Text] Siberia's important position in the national economic complex is determined by its immense natural wealth and its industrial, scientific and personnel potential which is growing each year. Every Siberian success or failure is immediately reflected in the affairs of the entire country. And this economic interconnection becomes stronger from one five-year plan to the next. Therefore it is especially important for the region to operate and develop reliably.

A large and representative all-union conference held last summer in Novosibirsk was devoted to the development of the productive forces of Siberia. Participating in it were secretaries of party kraykoms and obkoms and representatives of oblispolkoms of all oblasts and krays of Siberia, managers of 18 union and 22 republic ministries and departments, leading scientists of the country and directors of large enterprises.

Speaking at the conference were a member of the Politburo of the RSFSR Council of Ministers, V. A. Vorotnikov, the president of the USSR Academy of Sciences, Academician A. P. Aleksandrov, and the chairman of the Siberian Branch of the Academy of Sciences, Academician V. A. Koptug.

In this and the next issues of the magazine we shall familiarize the readers with the basic materials of the conference.

Respected comrades! Allow me first of all to express how deeply glad I am to have the opportunity to participate in the work of this important conference.

Scientists and managers of union and republic ministries and departments as well as party and soviet workers will discuss today the crucial issues of the development of the productive forces of Siberia and the acceleration of scientific and technical progress. This concluding session was preceded by the work of sections in various cities. This has made it possible to considerably expand the range of participants in the conference and give the opportunity to many of them to present their opinions regarding the problems that interest them.

The results of the work of the conference still have to be summed up. But even today it is clear that it will culminate with the adoption of many useful recommendations--useful both for science and for production. There is no doubt that this representative forum will be an important landmark on the path to solving large national economic problems to which attention will be devoted at the forthcoming 27th Party Congress.

The conference acquires special significance in connection with the fact that it is following along the line of that immense work which is being organized by the party Central Committee and the government in keeping with the decisions of the April Plenum and conferences of the CPSU Central Committee regarding questions of accelerating scientific and technical progress.

The Central Committee Plenum held in April formulated its concept of the acceleration of the country's socioeconomic development. Here, as General Secretary of the CPSU Central Committee M. S. Gorbachev emphasized, we are speaking about more than simply increasing the growth rates of the national economy. The essence of the matter lies in a new quality of our development, rapid advancement in strategically important areas, structural changes in production, a changeover to a basis of intensification, the utilization of effective forms of organization and stimulation of labor, and more complete resolution of social problems. Such, one might say, is the working formula for the progress of the Soviet society both in the next few years and in the more distant future.

These ideas were reflected in the decisions and materials of the July Plenum of the Central Committee and the third session of the USSR Supreme Soviet, which received heartfelt approval from communists and all Soviet people.

The party Central Committee will set the task of increasing the growth rates of the economy in forthcoming years, radically increasing labor productivity, fundamentally improving product quality and providing for a considerable savings on resources. I assume, comrades, that you all understand well the political, economic and social significance of this task and the fact that it is conditioned both by internal and external factors.

The pivotal issue in the intensification of the economy is acceleration of scientific and technical progress. The candid and principled discussion held at the June conference of the Central Committee helped to earmark ways of solving this problem. The Soviet people and the progressive world community

regard the report at the conference by M. S. Gorbachev as a most important document of a programmatic nature.

The Politburo of the CPSU Central Committee, when evaluating the results of the conference, noted that it is of primary significance for implementing the party economic strategy and is an important part of the preparations for the 27th CPSU Congress. It was emphasized that the achievement of the goals set at the conference and large-scale utilization of the achievements of scientific and technical progress should be a partywide, nationwide affair.

Soviet scientists, naturally, will participate in it most actively. If one is to speak about Siberian science, its role, in light of modern requirements, must be special: the party and the Soviet state legitimately link the advancement of the productive forces of this important region to the prospects for the country's further progress and acceleration of the rates of its economic and social development.

Siberia's important position in the country's national economic complex is determined primarily by its rapidly growing production and scientific potential and its immense natural resources. The concept of the country's long-term economic and social progress envisions accelerated development of the fuel and energy base and energy-intensive branches of industry in the region as well as comprehensive utilization of mineral-raw material and timber resources. The formation of the largest territorial production complexes--Western Siberian, Kansk-Achinsk, Sayansk and others--will continue.

Our Siberian affairs are more than just internally significant. It has repeatedly happened that they have become the point of intersection of the interests of large international forces as was the case, for example, when carrying out the "contract of the century" for the delivery of natural gas to Western Europe.

Among the great diversity of problems--economic, social and ecological--that are being resolved by Siberian scientists there are, of course, the most immediate ones. I should like to discuss these in greater detail today.

I shall begin with the fuel and energy problem. This state of affairs in the development of Siberia's fuel and energy complex, especially in the petroleum industry, has become serious in the recent past. The plan for the extraction of petroleum, including gas condensate, was underfulfilled by 9.5 million tons in Western Siberia last year. This year the indicators of the petroleum workers in Western Siberia are even lower than last year's level. The reasons for this are the delay in the exploitation of deposits that have been discovered, the imperfection of extraction technology, and the codevelopment of the construction base, energy and transportation, and facilities of the social infrastructure. The departmental separation and the fact that immediate decisions sometimes prevail to the detriment of the long-term strategy also have a negative effect.

Improvement of the technology for working more efficiently on the oil bed, the creation of industrial methods for building up petroleum deposits in systems for comprehensive automation of the control of wells, transportation and

warehousing, and mass production of highly productive electric pumps, high-pressure compressors and other modern equipment are extremely important in the branch.

Up to this point our gas industry is coping extremely successfully with its task, rapidly increasing the volumes of extraction mainly because of the Medvezhye and Urengoy deposits. Next comes Yamburg. In the gas extraction industry, through the efforts of scientific subdivisions and production enterprises, it is necessary to create technical equipment and technology for drilling wells of a larger diameter with a yield of 2-3 million cubic meters a day and drilling equipment and instruments for extracting gas from deep levels with high bed pressure and internally frozen rock which can go down 400-500 meters.

The general conclusion is that now as never before it is necessary to accelerate the development of the Western Siberian petroleum and gas complex along with other branches of production and the nonproduction sphere that are associated with it. A great deal of responsibility in this matter is placed on industrial and construction ministries, general economics departments, and local party and Soviet agencies. It is necessary to concentrate the efforts of the Siberian divisions of the USSR Academy of Sciences, VASKhNIL, the Academy of Medical Sciences and branch and VUZ science in solving this most important problem.

The party Central Committee and the government of the republic are seriously concerned about many difficult problems which have appeared in the coal industry in recent years. The Kuzbass did not fulfill the assignment set for it for the 10th Five-Year Plan to increase coal extraction to 162 million tons. What is worse is that the extraction of coal here has decreased in recent years. The main reasons are that they have not made serious improvement in the technology of coal extraction, progressive methods are being introduced poorly, and the reconstruction of existing mines and beds and the construction of new ones are proceeding at slow rates. Increasing the effectiveness of underground extraction of coal in the Kuzbass involves the introduction of powerful mechanized complexes and special means of digging and reinforcing the work faces and also transporting the coal. The creation of this equipment is an important task for scientific institutes and machine builders.

For more than 20 years in the Kuzbass mines have been worked with hydraulic extraction of coal. Labor productivity in these is twice as great and proportional capital investments 35-40 percent less than in mines with the traditional technology. But the proportion of hydraulic extraction does not exceed 3 percent even today.

The extraction of coal in the Kansk-Achinsk Basin is not increasing rapidly enough. Additionally, certain difficulties have arisen with the sale of the coal that has been extracted because of the technical unpreparedness of the consumers.

One cannot but be concerned about the fact that Siberia, with its extremely rich energy resources, for a long time now has been experiencing a shortage of

electric energy. This is the result of delays in the construction of electric power stations, especially thermal ones, and in the growth of other energy capacities.

The shortage of electric energy in Siberia will, of course, be overcome. But today, unfortunately, it has serious negative consequences which consists primarily in that the development of economical energy-intensive productions in the region is being slowed up.

The concept of the long-term development of the country's national economy envisions further increasing the role of the fuel and energy complex in Siberia. In the future approximately 70 percent of the petroleum and gas and about half of the coal should be extracted here, and no less than 18-20 percent of all the electric energy should be produced here. It will be necessary to solve two large problems at the same time. First, provide fuel and energy for the European part of the USSR, the Urals and the Far East, and also to satisfy the needs for export. Second, to satisfy the significantly growing demands for energy consumption in the Siberian region itself.

At the present time we are completing the development of target programs for the development of the Kuznetsk and Kansk-Achinsk fuel and energy complexes during the period up to the year 2000. In keeping with these programs the Kuzbass should become the main anthracite coal basin which supplies the European regions and the Urals with coking coal and high-energy coals. The Kansk-Achinsk brown coal basin will become more significant as the future base for the development of Siberian energy engineering. It is also intended to continue the construction of large electric power stations using casinghead and natural gas in Tyumen Oblast. The Sredne-Yeniseyskaya GES will apparently become a most important object of hydraulic energy construction.

Under the 11th Five-Year Plan more than 60 billion rubles or approximately one-third of the entire volume of capital investments in the country's energy economy will be invested in the fuel and energy complex of Siberia. Subsequently these expenditures will increase significantly. Because of this a primary task of statewide significance will be the comprehensive search for ways of economizing on funds when extracting, transporting, processing and utilizing fuel and energy resources. The most obvious and efficient of these is to reduce losses, which are still great.

Because of the lack of appreciable progress in methods of extraction, the coefficient of extraction of petroleum is low. It has practically not increased for many years. At the present time in deposits that are being worked they extract only from 25 to 50 percent of the geological supplies. At individual enterprises 30-40 percent of the coal is lost forever during extraction.

The solution to these problems requires active enlistment of scientists from the Siberian branch and branch institutes. On the basis of the achievements of physics, chemistry and other fundamental sciences it is necessary to develop, in particular, principally new methods for extracting petroleum and to create inexpensive precipitates which facilitate the pumping of liquid fuel along the main pipelines. Increasing the extraction of petroleum from

existing deposits by only 3 percent would give Western Siberia additional millions of tons of this raw material each year. Moreover the expenditures on increasing the petroleum return would be recouped 1.5-2 times as rapidly as capital investments in the assimilation of new petroleum deposits.

The main thing today is to provide for deep and comprehensive processing of petroleum, to reduce its utilization for energy purposes, and to replace it as much as possible with other kinds of fuel. The slowing up of the growth of the extraction of petroleum makes it necessary to search for new sources for obtaining motor fuels, lubricants and other liquid hydrocarbons. Even in the near future it will be necessary to increase the thoroughness of the processing of petroleum, to increase the extraction of light hydrocarbons to at least 60 percent, to utilize gas condensate better, and to work more actively on problems of utilizing hydrocarbon gas raw material for producing plastics and other products.

The Institute of Catalysis of the Siberian Branch of the USSR Academy of Sciences, the Institute of Fossil Fuels and the KATEKNIUgol of the Ministry of the Coal Industry have interesting results from scientific research and experimental work on obtaining synthetic liquid fuel. They must realize these results more energetically in industrial technologies, and the corresponding ministries must render maximum assistance to them.

The problem of creating installations for salvaging casinghead gas and condensate requires an immediate solution. Small installations for these tasks are already in operation in the Institute of Catalysis. It is necessary to conduct their industrial testing more rapidly and pave the way for their introduction.

Research and experimental testing developments have also proved the possibility of creating equipment for multipurpose utilization of Kansk-Achinsk coals while obtaining brown coal semicoke for ferrous metallurgy, aromatic hydrocarbons for the production of plastics, enamels and paints, and carbon growth stimulants for intensively increasing the productivity of grain, vegetables and other products. It is necessary to accelerate these developments.

Today we are forced to speak about serious arrears in the development and practical realization of a number of important areas of scientific and technical progress in energy engineering, without which it is impossible to count on rapid development of the Siberian economic complex. This pertains also to the development of effective methods of affecting the beds in order to increase their return, to technological plans for the processing of Kansk-Achinsk coals, to the creation of long-distance superhigh voltage electric power transmission lines, the construction of gas lines made of multilayer pipes with increased pressure, and many other scientific problems.

The work related to the problem of hydraulic transportation of coal over long distances is very promising. This will largely determine the strategy for the development of the Kuzbass and KATEK. According to the plan for the current five-year plan the Belovo-Novosibirsk Experimental Production Coal Pipeline is to be constructed. Institutes of the Ministry of the Coal Industry, Ministry

of Power and Electrification, and Ministry of Construction for the Petroleum and Gas Industry which, unfortunately, have not yet completed research and planning for this mainline, must accelerate the work and provide modern technical solutions for industry.

Siberia's mineral raw material complex is of great national economic significance. The development of productive forces leads to increased demands for various kinds of raw and processed materials, whose expenditures have reached unprecedented amounts. The Russian Federation alone annually consumes more than a million rubles' worth of them.

In recent years we have been forced to go to more and more remote regions with difficult access for raw materials. The extraction is becoming more difficult and more expensive. In spite of the fact that capital investments in the extraction branches have increased several times more rapidly than they have in other spheres of the national economy, the volume of extraction of polymetallic ores and the procurement of timber are practically not increasing, and sometimes they are even decreasing. The increased costs of natural resources and their extensive utilization are having an increasingly appreciable effect on our economy.

Under these conditions primary significance is attached to more extensive utilization of resource-saving technologies. Science and practice show that this path is one-half to one-third as expensive as increasing the extraction of minerals and processing them by the traditional methods. Measures for eliminating losses and utilizing extracted and secondary raw material more completely are turning out to be even more effective. It has been calculated that as a result of bringing secondary raw materials into circulation it would be possible to save several tens of billions of rubles annually.

Work in this area is already being done within the framework of the program Sibir. For example, the introduction of mining capacities at mines of the Norilsk mining-metallurgical combine using new equipment and technology has made it possible to reduce losses to two-thirds to one-half the previous amounts. Comprehensive processing of nephthalene ores is being done at the Achinsk Aluminum Combine where, in addition to the main product--aluminum, they obtain soda, cement and potash.

But it must be recognized that in the matter of complete and comprehensive utilization of resources many enterprises of the region are far from holding the leading positions. Scientific fundamentals of resource-saving technologies for the extraction of mineral raw material and an increased degree of their extraction from the earth are being developed slowly. It is also necessary to do more energetic work for eliminating losses in the process of subsequent conversions. A solution to this problem is possible with complete utilization of the scientific potential of the Siberian branch and the branch institutes. The efforts of scientists should be directed toward the development of principally new methods for extracting and processing raw material as well as new technologies.

At the present time, for example, at nonferrous metallurgy enterprises in Siberia only 12 percent of the ore wastes are salvaged. By the end of the

next five-year plan the volume of unutilized wastes will double and amount to about 600 million cubic meters. At the same time it is known that it costs one-half to one-third as much to produce construction materials from them as it does at enterprises of the construction materials industry.

In the region there is a low degree of extraction of side components whose value sometimes exceeds the value of the basic components of individual deposits. Not enough attention is being devoted to comprehensive utilization of blast furnace and steel-smelting slag, sludge, "tailings" from enriching factories, wastes from petrochemical productions, and so forth. Even in one of the leading enterprises of nonferrous metallurgy--the Norilsk Mining-Metallurgical Combine--losses of ore during enrichment and metallurgical conversion reached 20 percent of the value of the components included in them. Unfortunately, there are many examples like this at other ore-enriching enterprises of Siberia as well.

Reduced-waste and waste-free technologies are being introduced slowly as are technological processes for thorough processing of mineral resources. The innovation of the technologies used at the present time in Siberia is frequently determined not by their principal distinction from previously existing ones, but mainly by the geometric dimensions of the equipment. This, naturally, does not lead to decisive progress in economizing on resources or fuller utilization of their potential.

The problem of the comprehensiveness of the utilization of raw materials has been developed especially poorly--both scientifically and industrially--with respect to timber resources. And yet timber is one of the main natural resources of Siberia. The timber complex here is developing, as before, one-sidedly, mainly in the direction of increasing timber procurements. Wood processing is lagging behind significantly. Methods of waste-free utilization of timber are being introduced extremely slowly, plans for the construction of enterprises for in-depth and comprehensive processing of timber regularly not fulfilled, and the volumes of wood chemistry products are not growing. The output of modern products from each cubic meter of timber in our country is one-third to one-fourth the amount in other countries that have advanced technology and equipment. We have not solved the problem of utilizing soft woods and the losses of timber are great during procurement and processing.

In branches of the timber complex we need a unified approach to organizing more complete and efficient processing of timber resources. In particular, it is necessary to develop and in the near future to introduce technical equipment and technology for waste-free processing of timber. Experience shows that when the appropriate equipment is created even lignin, which until recently was considered to be an unsalvageable waste, can be utilized successfully for producing fertilizers, construction elements and silicon crystals. And recently with an experimental installation at the Krasnoyarsk KATEKNIUgol Institute even synthetic fuel was obtained from lignin.

The party is setting the task of shifting the center of gravity of work to comprehensive savings and more complete utilization of natural resources. This is a most important state problem. It was emphasized at the June conference of the Central Committee that economizing on resources should be

one of the main areas of the investment policy. The national economy's increased need for fuel, raw materials and processed materials will have to be satisfied by 75-80 percent as a result of economizing on them.

Increasing the scientific support for this problem is a matter of immense national economic importance. It is necessary to concentrate the efforts of academic and branch science on the creation and practical realization of principally new technology and modern equipment that correspond to the highest world achievements. In particular, it is necessary to expand the volumes of scientific research work in the area of reduced-waste and waste-free technologies and to accelerate the development of industrial methods of comprehensive utilization of raw materials and processing of industrial wastes. Understandably, this problem is largely of an interbranch nature. Therefore the duty of scientists consists not only in providing for the development of the corresponding technical equipment and technologies, but also suggesting a planning and economic mechanism which makes the extraction and processing branches interested in these.

Comrades! The solution to the fuel-energy and raw material problems is conditioned to a decisive degree by the prospecting and discovery of new supplies of natural resources and the expansion of geological prospecting work. Even now each year about 2.2 billion rubles are spent on prospecting for deposits of minerals in Siberia. But the potential resources are still far from being discovered. The geological study for petroleum is still extremely weak and irregular, and industrial supplies of petroleum still do not provide for the necessary rates of growth of its extraction. Detailed prospecting of the most important coal deposits is falling behind the need. Up to this point we do not have sufficient explored supplies of high-quality bauxites which are suitable for industrial utilization. The growth rates of the supplies of ferrous metals at a number of existing enterprises do not satisfy the production needs.

In the future allocations for geological prospecting of natural resource bases in the region will increase significantly. Therefore it is important to determine correctly the priority areas for their expenditure.

Geologists think that in the future most of the funds should be used for exploration and prospecting for petroleum, and mainly for large deposits of it. This is the only true path since today it is difficult to satisfy the needs of the national economy for fuel and chemical raw material by assimilating small deposits.

Is this path realistic? Opinions differ here. But the majority of scientists and practical workers think that in Western Siberia it is possible to discover new deposits. In essence we are actually just beginning to explore the resources of petroleum and gas in the eastern regions of Siberia.

The search for and assimilation of new deposits of nonferrous metals is acquiring great national economic significance. In particular, in the near future it will be necessary to compensate for the exhaustion of supplies of rich nickel ores in the Norilsk region. A no less crucial problem is the discovery of large deposits of bauxites for aluminum plants in Siberia, whose

raw material now must be shipped in from the European part of the country. Geologists are faced with the task of providing for the necessary rates of development of the extraction of diamonds, gold, tin, tungsten, molybdenum and other nonferrous and noble metals and minerals.

We should like to draw special attention to the need to search for new deposits in regions where mining enterprises already exist. The majority of them are not provided with detailed information about explorations for resources within the normative time periods. It is necessary to exert maximum efforts in order to strengthen their raw material base.

Under the 12th Five-Year Plan and in subsequent years it will be necessary to raise the geological study of Siberia to a qualitatively higher level. First and foremost the country is expecting new discoveries of kinds of raw material that are in short supply and are valuable on the market, which have a decisive significance for the national economy and good economic indicators of assimilation. Here it is important to provide for preparation for assimilation of natural resources at rates that outstrip the development of industries that use resources.

In order to reach new deposits more rapidly geologists are extremely in need of assistance from other scientists. We are speaking about improving methods of searching for and developing new approaches to solving the problems that arise here and expanding the production of the corresponding apparatus and instruments. Experience has shown that geological prospectors cannot do without intensive enlistment of the scientific potential of the Siberian branch.

Comrades! When determining the overall strategy for technical progress in Siberia our scientific subdivisions are called upon to comprehensively take into account the peculiarities of the region, as a result of which there has been a sharp increase in the cost of equipment and the capital-intensiveness of construction here. Under local conditions the utilization of traditional equipment is not very effective; here it is necessary to create special technical means and technologies.

We are speaking primarily about increasing the unit capacities of equipment. Large supplies of minerals can be utilized only with the help of machines that are unique in terms of their productivity. Thus in order to extract coal in the Kansk-Achinsk Basin it is necessary to have rotary excavators and equipment to form terraces with a productivity of up to 12,000 cubic meters per hour, drag lines with a shovel capacity of up to 100-120 cubic meters, and the appropriate transportation for them--dump cars, sets of pulling equipment, and coal trucks with capacities of from 120 to 300 tons.

Another very responsible area in the development of machine building should be the creation of modern equipment for comprehensive utilization of natural raw material. We have already discussed the essence of this problem. Here it is appropriate to mention that the objects involved in complete and thorough processing of raw material and improvement of the quality of the products that are produced should be constructed much more rapidly than before. It is necessary to put an end to cases in which they are underestimated, in which

the quantity of raw material that is extracted is the important thing and no attention is paid to the large losses of it.

Regarding questions of the development of Siberian machine building I should like to especially emphasize the need when creating technical equipment to be constantly concerned about increasing labor productivity. It is a pity that this is not always taken into account by our planners, technologists and designers. For example, under the 12th Five-Year Plan almost 400,000 industrial production personnel will be needed for the newly introduced enterprises and shops in Krasnoyarsk Kray. The growth of the able-bodied population will be much less than this. In the next 5 years more than 1.4 million workers of various occupations will be needed for the new enterprises and shops of Tyumen while the entire increase in active population will not come close to covering these needs. And to this one must add workers of the nonproduction sphere as well. So it turns out that by creating less productive technical equipment we are exacerbating the problem of labor resources which is critical in Siberia in any case.

Intensive assimilation of natural resources in the region is inseparably linked to the creation and organization of the production of technical equipment for "northern" use. It is known that the severe conditions of Siberia have an unfavorable effect on the ability of technical equipment to operate and they reduce its economic indicators. For example, the number of breakdowns of the main components of trucks during the winter period is 10 times greater than during the summer period. The fact that the operational materials--fuel, oils, lubricants and industrial liquids--do not correspond to the climatic conditions causes increased expenditure of them.

There are calculations which show that the application of ordinary technical equipment even in the near future can lead to an increase in losses of up to 1.5-2 billion rubles per year. Moreover, restoring this equipment and maintaining it in working condition will require the labor resources of up to 1 million people. It is impossible to envision such an increase of workers in any plans since they simply do not exist.

The country has accumulated a certain amount of experience in the production and operation of technical equipment that is necessary for the northern regions. The corresponding modifications of certain kinds of trucks and buses have been developed. They have undergone testing and been recommended for series production. The operation of the T-180 tractor in the north provides for an annual economic effect in an amount of 7,000 rubles.

We have certain results in the production of fuel and lubricants. Special additives, although they increase the production cost of machine oils by 20 percent, reduce the expenditure of these to one-half to one-third.

I should like to discuss especially the need to create equipment for construction work and special transportation equipment. Successful functioning of the construction complex under the conditions of Siberia requires, on the one hand, mass dissemination of new reduced-operation construction technology which is based on independent design of the technological and construction parts of the buildings and structures and the

application of lightweight elements with complete plant readiness. On the other hand, it is necessary to create highly productive and reliable construction equipment--bulldozer-looseners on the basis of industrial tractors, machines for cutting openings in frozen ground, machines for explosive drilling work and others. All the technical equipment, especially drilling, construction and timber procurement equipment, should be maximally adapted to operating without roads and should provide for the protection of nature.

The creation of technical equipment for northern use presupposes solving certain serious scientific problems. It is necessary, in particular, to develop methods for preventing cold brittleness, to assimilate the production of new materials that are adapted to low temperatures, and to create principally new elements of machines that are capable of operating under the conditions of below-zero temperatures and with rocky, eternally frozen, marshy, sandy and soft ground. An extremely important task for science and practice is the development of effective methods of breaking down the eternally frozen and rocky masses and creating the corresponding technical equipment. The expansion of production of means of transportation that use aerodynamic principles is promising for the conditions of Siberia.

Our scientific community is showing a great deal of interest in the creation of special technical equipment and materials for Siberia. Scientific councils which include leading scientists have been formed under the State Committee for Science and Technology for this purpose. It is necessary to have a program for the creation of this equipment which would be an organic part of the plan for the 12th Five-Year Plan. It seems that the Siberian branch of the Academy of Sciences could be the initiator of the development of these important measures.

Comrades! Regarding economic issues I should like to discuss the need for comprehensive, intercoordinated development of the Siberian region. In addition to constant attention to the branches which determine the specialization of economic regions, this presupposes constant concern for all of the other spheres, both production and social.

We are speaking primarily about creating a modern infrastructure--systems of energy supply, and objects of transportation and communications. We must not forget about the traditional occupations of the local population, especially the minor nationalities of the north--hunting, deer raising, the sea animal industry and others. They too must be taken into account in the plans for the development of the northern regions.

In the complex of problems related to the development of the productive forces of Siberia one of the primary ones is comprehensively increasing the production of agricultural products. The party, as you know, has set the task of providing for reliable supply of this region's population with foodstuffs, mainly through local production. This task can be carried out only through intensification of agriculture and increased effectiveness of all of its branches on the basis of scientific and technical progress.

During the past 10 years 35 billion rubles' worth of capital investments have been made in the development of agriculture for the entire complex of work in the regions of Siberia. During this time fixed production capital and capital-availability for labor have almost doubled. There has been a considerable increase in the deliveries of mineral fertilizers, technical equipment, feed supplements, and chemical means of plant protection.

The measures that have been taken have made it possible to increase the average annual production of the gross agricultural product on the kolkhozes and sovkhozes here from 6.6 billion rubles under the 9th Five-Year Plan to 7.1 billion rubles under the 11th Five-Year Plan. Labor productivity increased by 15 percent. There was an increase in the production of meat, milk, vegetables and potatoes, and the provision of the workers with foodstuffs improved.

Agricultural science made an appreciable contribution to carrying out these tasks. During the years of the 11th Five-Year Plan alone scientific collectives of the Siberian divisions of the Academy of Sciences and VASKhNIL turned over about 1,000 developments for introduction. More than one-fourth of them were included in the unionwide and republic plans.

But the growth rates of the production of agricultural products in the regions of Siberia still do not meet the growing needs. Soviet and agricultural agencies as well as scientific research institutions are slow and inefficient in carrying out the tasks for intensification of agriculture. It is necessary to eliminate the shortcomings that exist here and increase the concentration of forces and material resources on a comprehensive solution to the crucial problems of agricultural production.

Primary attention should be devoted to the grain problem. There is serious concern about the fact that under the current five-year plan the production of grain in the zone not only is not increasing but has even decreased as compared to the 9th and 10th five-year plans.

And even in the next few years it will be necessary to achieve an increase in the productivity of grain crops of 4-6 quintals per hectare. As for the more distant future, the production of grain in the region should be increased to 38-40 million tons. These were the goals that were earmarked in the long-term program entitled "the agrarian complex of Siberia and the Far East."

Is this task realistic? Science and practice give a positive answer to this question. It has been proved that even now the grain fields in Siberia could increase their productivity by 30-50 percent.

The main directions for increasing the productivity of agricultural crops and increasing the fertility of the soil is, as we know, the introduction of scientifically substantiated farming systems. A certain amount of work has been done on this in the region. Efficient structures for the planted areas, soil protection crop rotation, and industrial and intensive technology for the cultivation of agricultural crops have been developed and are being introduced. In Altay Kray and Novosibirsk and Omsk Oblast alone about 3 million hectares have been allotted for the production of spring wheat with intensive technology this year.

The high effectiveness of scientifically substantiated systems of farming is confirmed by the experience of many farms which, by implementing a complex of agrotechnical measures, regularly harvests an average of 15 and more quintals of grain per hectare. And in the best of these collectives such as the Omsk Experimental Production Farm imeni Frunze, the Altay Kolkhoz imeni Shumakov and others--the productivity has increased to 30 quintals and more.

At the same time the introduction of scientifically substantiated systems of farming and industrial and intensive technologies is proceeding at low rates in a number of places. Scientific recommendations concerning the structure of the planted areas are being violated. Crop rotations have been introduced on only 90 percent of the area. The grain fields in Siberia occupy 1.2 million hectares less than is suggested according to the recommendations of science. Measures for protecting the soil from erosion are not being carried out fully.

The owner of Siberian scientists cannot but be offended by the fact that the majority of developments of the latest technical equipment for agriculture come to Siberia from the eastern part of the country. But then, unfortunately, they do not always take local conditions into account. As for slope farming, which is an appreciable reserve, there is no set of machines at all for this.

Selection science is faced with responsible tasks. Experimental selection institutions have recently turned over for testing a considerable number of new strains and hybrids. There are more than 20 innovations to the credit of Western Siberian selection workers alone. But nonetheless these are not enough.

Strains from Siberian selection are not planted on little more than 9 million hectares, or about 55 percent of the overall planted area. Actually there are no areas planted in early ripening strain crops which are resistant to root rots and other fungus diseases. The Siberian agronomist cannot boast about the fact that he has for maneuvering several strains which would be highly productive, which would adapt to the short Siberian summer, would not lodge and would make it possible to harvest the grain early.

What is the matter here? First of all that agricultural agencies, scientific research institutions and feed growing farms are extremely slow in propagating new strains and hybrids. Sometimes their introduction is dragged out for many years. Assignments are not being fulfilled for the sale of seeds of high productions of buckwheat, vetch and perennial grasses.

In this connection I recall that it was precisely here in Siberia at the end of the 1970's that the collective of the SibNIISKhoz first developed a system which makes it possible even in the third or fourth year of regionalization of a strain to plant 2-3 million hectares in it. An example of this is the Omskaya-9 and Irtyshanka-10 spring wheat.

It is no less important to eliminate the serious arrears in the selection of strains of agricultural crops which comprehensive resistance to unfavorable factors in the environment.

A couple of words about animal husbandry. The contribution of Siberian scientists to the development of this branch is appreciable. Normal systems of animal husbandry and industrial and energy-saving technologies for the production of animal husbandry products have been developed and are being introduced. A number of effective developments have been completed for mechanization of technological processes in animal husbandry and feed production.

At the same time there are unsolved problems. In particular, progressive methods of selection and propagation of agricultural animals are being developed and assimilated slowly in the zone. Here is a concrete example. The farms of the Omskiy Bekon Association and a number of other kolkhozes and sovkhoses of Siberia are successfully applying industrial crossing of hogs and as a result of this they are obtaining an additional 25-30 percent in output. This method has been well studied and is available for all hog-raising farms. But it is being poorly introduced. Workers of agricultural agencies blame science, and science blames production workers, but the matter is not getting off the ground.

I should like to draw attention to another fact. During the past years 7,000 head of cattle worth a sum in excess of 5 million exchange rubles have been imported for the farms of Siberia. Additionally, through interoblast ties they have delivered 225,000 high-value calves worth 225.7 million rubles. Well, and what is the result? Although the breed composition of the cattle has improved, the productivity has remained at the previous level, and in some cases it has even decreased.

It is necessary to decisively improve breeding work in animal husbandry. In particular it is necessary to direct efforts toward the development of effective methods of selection of animals and also respective measures for prevention and elimination of their diseases, above all brucellosis and tuberculosis. I am not even speaking about the need to radically strengthen the feed base. Without this, it would seem, we will not be able to carry out the task that has been set for us--to actually double the production of milk and meat in the region.

The economic situation in rural areas has changed for the better recently. The number of farms operating at a loss has been cut in half and the profitability of production has increased.

At the same time certain facts cannot alarm us. Thus the average rates of increase in labor productivity on the kolkhozes and sovkhoses of Siberia under the 11th Five-Year Plan as compared to the 10th were barely two-thirds of the republic level. The material-intensiveness of production remains high. Many farms are not utilizing mineral fertilizers effectively. As a result the production outlays have not decreased in recent years but are increasing. More than one-third of the kolkhozes and sovkhoses of the region are operating without a profit.

All of these issues require serious scientific development by scientists of the Institute of Economics of the Siberian Branch of VASKhNIL and economics subdivisions of other agricultural institutes.

As you see, comrades, many problems have accumulated which require effective scientific support. This must be started immediately.

What has been said, of course, pertains to agricultural science not only in Siberia, but in the Russian Federation as a whole. As before, we have poor quality as individual scientific developments. Some of them are not carried out comprehensively, as a result of which production receives recommendations not for completed technology, but individual fragments of it which do not always work together under the conditions of a specific kolkhoz or sovkhaz. This is one of the reasons why the majority of completed projects do not get outside the laboratories. But of the overall number of scientific research projects on questions of farming and chemization about 18 percent of the developments are introduced, and for feed production and mechanization--8-10 percent.

Questions of the quality of scientific research must constantly be kept in the field of vision. Otherwise losses are inevitable. Thus when processing milk according to the technology which is traditional but is outdated today we exclude from the food balance almost half of the protein--this product which is in extremely short supply in the country. At the same time in certain countries these losses do not exceed 7-8 percent. The output of nonfat high-protein dairy products amounts to 6 percent in our country, while in traditionally "dairy" countries it is 25-40 percent.

We will have to take a large step forward in the development of agricultural production under the 12th Five-Year Plan. It would seem that Siberia has a fairly good scientific stockpile for doing this. We have developed a system of measures for scientific support of the Food Program in the region during the period up to the year 1990, a general plan for the development and distribution of agriculture in Siberia up to the year 2000, and a comprehensive program for scientific and technical progress in agriculture during this period. We have also prepared proposals for implementing the Food Program in the cross-section of oblasts, krais and autonomous republics and for creating a food base for regions of industrial assimilation of the BAM zone.

The ministries and departments of the RSFSR, local agencies and scientific institutions must reach a point where these programs are unconditionally fulfilled.

Comrades! The rapid development of Siberia requires a principally new approach to the protection and utilization of its natural resources. These resources are truly immense, but we must show a great deal of concern for them. Unfortunately, up to this point the poetic definition of Siberia as a "region of inestimable wealth" has had a magical effect on our economic leaders. The system of the utilization of nature is developing mainly in an extensive way here, with increased "wastefulness" in the assimilation, extraction, processing and consumption of natural resources and materials.

And this causes pollution of the natural environment and deterioration of the conditions for the production of many kinds of renewal resources.

All this shows that a major task in the area of the protection of nature is to increase the degree of utilization of the natural substances that have been drawn into economic circulation. A radical solution to this problem requires the formation of regional "waste-free" production through joining together enterprises with various kinds of waste. This is what Siberian scientists should be working on.

Along with the more rapid development of waste-free technological processes and equipment, which has already been mentioned, we must provide for increased effectiveness of protective systems and installations, the development of normatives for the quality of the natural environment, and improvement of the structure of expenditures for ecological purposes.

I should like to draw your attention especially to problems of protection and efficient utilization of the air basin and water and land resources.

Concern for protection of our main natural wealth, the soil, should be at the center of our attention. It is exceptionally important to take measures to prevent water and wind erosion of the soil, which up to this point causes a great deal of harm to the fertility of the land. There is the crucial problem of developing methods of accelerated return to economic circulation of land that has been disturbed in the process of conducting mining, construction and other work. Today their areas amount to more than 250,000 hectares in Siberia and Yakutiya. And they are increasing from year to year since the rates of recultivation lag significantly behind the rates of utilization of the land for nonagricultural purposes. It is necessary to take all possible measures to increase the productivity of the land and to utilize each hectare of agricultural land effectively.

We should especially discuss problems of protection of nature in the northern regions where it is extremely vulnerable and the natural restoration of ecological systems takes place very slowly. Scientists have done a good deal to develop effective norms for the protection of nature. But the situation here is still alarming.

Recently the Presidium of the RSFSR Council of Ministers considered the state of affairs with protection of the environment on the routes where main gas pipelines are being constructed in regions of Western Siberia and the Far North. Their distance already amounts to more than 11,000 kilometers, and in the future it will reach 25,000. It became clear that during the process of construction and operation of gas lines there are many violations of environmental protection legislation. They do not always envision the necessary structures on the paths of migration of wild animals, which leads to their destruction. A good deal of harm is being caused to small and medium-sized rivers which are being clogged up with scraps of timber and construction materials. It will be necessary to spend a considerable amount of money in the next few years just on immediate measures for eliminating the consequences of violations that have occurred along the routes of gas pipelines.

Comrades! The solution to production problems is closely linked to the realization of our social program. The communist party line toward balanced economic and social development has special significance for Siberia. I should like to note with satisfaction that residential buildings with an overall area of more than 150 million square meters have been constructed just in the past 15 years. The provision of children's preschool institutions have increased. The commodity turnover in trade has more than doubled and the volume of consumer services has increased threefold. Indicators in the area of public health, public education and culture have also changed for the better.

But even with the large positive changes that have taken place in the conditions for the life of Siberians, the social sphere of this zone is still developing more slowly than the production sphere is, which in the final analysis causes harm to the economy.

It is quite clear that living standards that are higher than in the more densely inhabited regions of the country are an indispensable condition for the implementation of the immense program for the development of Siberia. But we are still a long way away from a solution to this problem. Moreover, plans for the introduction of housing and other facilities of the social infrastructure are regularly not fulfilled. As before, the problem of improving housing and living conditions for young specialists is crucial. Its solution rests on the funds allotted by branch ministries and departments and also the ispolkoms of the local soviets. It is necessary to decisively improve living conditions for young specialists, including for the construction of youth residential complexes and cooperative residential buildings on the basis of shared participation of the interested enterprises and organizations.

The ministries and departments as well as the local soviets must radically change their attitude toward these crucial social problems.

The party, including in new regions, attaches a great deal of significance to increasing production and improving the quality of consumer goods, considering this to be the most important sociopolitical tasks. Although recently a good deal has been done in this respect, the existing possibilities are far from being fully utilized. Expansion of the production of consumer goods at all industrial enterprises, regardless of their jurisdiction, will not only contribute to fuller satisfaction of the needs of the workers, but will also make it possible to increase the utilization of capacities and wastes and processed materials.

It is necessary to considerably expand scientific research on questions of social development. More attention should be devoted to substantiating the forms and methods of assimilation of new regions, studying processes of migration of the population, and developing practical recommendations concerning the retention of personnel, the reduction of their turnover and the adaptation of the population to severe climatic conditions.

Or take questions of the development of the spiritual environment and the organization of the population's leisure. As sociological research shows,

these constitute one of the most important factors in keeping people in Siberia, a kind of means of compensation for a certain negative influence of the extreme natural conditions, and with respect to use it is no less and sometimes even more significance on the level of wages and living conditions.

Under past five-year plans a good deal has been done for developing culture and art in Siberia. The movement entitled "Let Us Turn Siberia Into a Region of High Culture" has taken on a broad scope. According to certain--although far from all--indicators, the level of cultural service for the population in the eastern regions of the RSFSR has begun to surpass the average Russian level. In keeping with the task or more rapid economic and social development of Siberia it is supposed that the rates of growth of the sphere of culture here will be higher than the average in the country and the RSFSR up until the year 2000.

But under the specific conditions of this region, where each step forward, as we know, requires more considerable effort than in other regions of the country, there is the crucial problem of developing the long-range concept of its cultural development. It must contain the substantiation and the ways of realizing the norms inherent in Siberia, the directions and forms of cultural life, the models of regional complexes of culture and the organization of the leisure of the population of the cities and villages of the BAM zone and the largest territorial production complexes. A special, nonstandard approach is required because of the crucial issues of the cultural advancement of the Siberian countryside, the development of culture and art in regions of the Far North, the organization of leisure in the watch regions, and the protection and utilization of monuments of history and culture. A good deal must be done to protect and multiply the traditions of local artistic industries and handicrafts of the Siberians. Exceptional attention should be given to questions of aesthetic education of children, and in this area of social development it is necessary to have a "Siberian variant" which provides for greater opportunities than exist in the more inhabited regions of the country.

An effective solution to the large-scale tasks related to the cultural development of Siberia undoubtedly requires the application of the target-program approach which is organically coordinated with the Sibir program. Scientists of academic institutes of the Siberian branch of the USSR Academy of Sciences, universities, VUZes and scientific institutions should participate actively in this important matter.

The role of local agencies and industrial ministries in the development of Siberian culture should increase significantly.

It is necessary to increase the coordinating role of local soviets in the sphere of culture and the organization of leisure and to increase the responsibility for overcoming departmental separation in practice. As you know, this was especially pointed out in the decree of the CPSU Central Committee, "On Measures for Improving the Utilization of Club Institutions and Sports Facilities."

I should also like to draw attention to the need for efficient utilization of the resources that are allotted for cultural construction. The "Siberian

scope" should not be associated with megalomania, unjustified construction of costly buildings, which moreover frequently stand empty. The cultural potential of Siberia should grow not only as a result of new investments, but also as a result of the innovative methods the Siberians have of utilizing those considerable opportunities which have already been created here.

An important aspect of the social development of Siberia is the protection of the people's health. We should not be complacent about the positive tendencies in the demographic processes in the eastern regions of the republic --higher birth rate, relatively low indicators of the death rate, a higher level of natural increase in the population, and an insignificant proportion of older people. The concern for man should always be an object of the most constant attention from workers in medical science and public health. In this connection one must give a positive evaluation to the target program titled "Human Health in Siberia" which was developed by the Siberian branch of the USSR Academy of Medical Sciences and the RSFSR Ministry of Public Health. There is no doubt that its implementation will contribute to successfully national economic and medical-social problems.

Comrades! Further growth of the economic potential of Siberia requires significant improvement in the training and utilization of specialists in all branches of the production and nonproduction spheres.

In recent years Siberia has achieved great success in providing the national economy with specialists who have higher and secondary specialized education. Suffice it to say that the provision of these people at the present time is higher here than it is in certain other regions of our republic.

But the need for experienced personnel is still being satisfied poorly, and in many cases we are not disposing of the existing personnel potential in an economical way. As was already noted, labor turnover is great among people who come to Siberia from other regions of the country. There is still a large proportion of practical workers among the managers and specialists in the national economy. This ranges from 16 to 19 percent, depending on the branch.

The personnel problem is a problem for all regions of the republic. Undoubtedly scientists are also called upon to give their significant suggestions about solving this.

First of all it is necessary to achieve an improvement in the matter of training specialists for Siberia in higher and secondary specialized training institutions. Practice has shown in particular the effectiveness of the course toward target training from the local population. This is being expanded. Since the last school year work on training and retraining of specialists in new future areas of science and technology from local use has been started in the Novosibirsk, Tomsk, and Krasnoyarsk universities and other VUZes. It is gratifying that the majority of graduates of Siberian VUZes now remain in the region.

At the same time there is the question of the expediency of gradually bringing the training of specialists closer to the places of their future employment. This requires not only the creation of the corresponding material and

technical base, but also the formation of local highly qualified professorial and teaching personnel.

Judging from everything there is a need to change over everywhere to training of personnel under direct agreements. It is also necessary to improve the structure and expand the graduation of specialists in occupations where there are shortages, by admitting youth to the corresponding divisions under privileged conditions. The entire system of training personnel should be oriented toward a qualitatively new stage in the development of the eastern regions and a radical restructuring of production management and the entire economic mechanism.

Today there is the quite crucial problem of changing over from the current, mainly extensive-informational to the intensive-fundamental principle of training, improving ties between VUZes and science and production, providing for greater differentiation and direction of education, and so forth. In essence we are speaking about a reform of the higher school which is directed toward a sharp improvement in the quality of training of specialists. This problem is being studied now and workers of the higher school in Siberia should give their authoritative opinion.

The level of training of future specialists is determined first of all by the pedagogical collectives of the higher educational institutions, the scientific qualifications of professors and instructors, and their pedagogical mastery. During the years of the current five-year plan in higher educational institutions of Siberia that are under the jurisdiction of the RSFSR Ministry of Higher and Specialized Education the number of doctors and candidates of sciences increased by 1,630. More than 40 percent of the instructors and scientific workers have scholarly degrees and titles. But on the whole the proportion of these specialists in the region is considerably lower than the average republic level.

VUZes of Siberia now perform scientific research work worth an overall volume of tens of millions of rubles. At the same time its further expansion is being impeded to no small degree by the shortage of modern equipment. Therefore it is necessary to organize things in such a way that the newest technical equipment must necessarily be delivered to the higher educational institutions.

It is necessary to take more extensive advantage of scientific equipment, to change over to cooperative inter-VUZ conducting of experiments, and to create centers for collective utilization.

An ever increasing role in the training of personnel in VUZes is being played by the study of social sciences and their close connection with special training subjects. It is necessary to strengthen the philosophical tempering of personnel and their political, moral and aesthetic education throughout the entire system of training. This is an important prerequisite for successful implementation of the tasks of scientific and technical progress.

Life shows that the system of increasing qualifications and retraining personnel, including in Siberia, is in need of serious improvement. Today

whoever wishes to deal with this does so whenever he wishes to. There are branch institutes for increasing qualifications, special departments in the number of VUZes, departmental and territorial courses and training combines. There is no clear-cut division of the sphere of activity among them, the forms and time periods for training are not unified, and the level of teaching personnel varies. Hence the return from the system is also low.

Comrades! Following a course toward accelerated development of Siberia's economy requires improvement of methods of planned management and the search for new organizational forms.

The experience of socialist construction has proved the effectiveness of the target-program approach to solving large regional problems. Its essence, as we know, consists in the possibility of providing for agreement and coordination of interconnected measures, beginning with scientific research, design and planning, right up until the introduction of the completed production facilities which are ready for operation.

The target-program approach was extensively applied in the practice of constructing the Baykal-Amur Mainline and it will also be extensively utilized in the economic assimilation of the zone adjacent to it. Recently, as you know, the CPSU Central Committee and the USSR Council of Ministers adopted a decree regarding this issue. It includes assignments for many ministries and departments concerning improvement of construction and building up the area around the railroad mainline, constructing facilities for industry and agriculture, and developing the system of cities and villages. A comprehensive program has also been prepared for the development of the Western Siberian petroleum and gas complex which provides for synchronization of measures for geological preparation and the establishment of industrial supplies of deposits, the creation of productions for processing hydrocarbon raw material and the development of the production and sociodomestic infrastructure.

The target-program basis, in the opinion of specialists, should prevail in solving the most important problems in the long-term development of Siberia. It is important for the measures envisioned in the programs to become an organic part of the corresponding branch and territorial plans for the 12th Five-Year Plan. It is necessary again to take a careful look from the standpoint of their correspondence to the requirements of modern scientific and technical progress. It is necessary to think out well the sequence for the implementation of the regional programs that have been developed, taking into account the limitedness of capital investments and labor resources, and not to allow extensive freezing of capital. You know that in the report from M. S. Gorbachev at the July Conference of the CPSU Central Committee certain "Siberian" examples were given for many years of freezing of tens of billions of rubles in incomplete construction. I do not think that they should not be beyond the field of vision of our scientists, including economists.

It is especially worth mentioning the improvement of planning and management of territorial production complexes. This is a progressive form of organizing the economy in new regions. Although we have a good deal of experience behind us with the formation of the Bratsk-Ust-Ilimsk, Sayansk and other complexes, a

number of principal issues still remain unsolved. This pertains first and foremost to problems of combining the interests of individual ministries and departments as well as the entire economy of the complex, subordinating all of these to a unified goal, coordinating their activity more efficiently, and creating complex wide elements of the infrastructure.

The objects of statewide and target-program planning and management should be a relatively small number of complexes which are in the stage of active formation. To do this it is necessary to develop systems of preplanning and planning documents, the policy for their information support, expert evaluation and approval. It is important for the plans for the TPK to be coordinated with the corresponding sections of the USSR State Plan and branch and territorial plans. Economic science should hold an important position in this matter.

The process of improving territorial planning should also affect such a unit as the large economic region. You know that for each economic region located on the territory of the RSFSR a comprehensive program for scientific and technical progress and a territorial plan for the development and distribution of productive forces are drawn up.

Apparently the time has come to analyze the existing experience in planning and management of the development of large economic regions. I believe that it would be expedient to enlist the Siberian branch of the USSR Academy of Sciences for this work.

Comrades! The scientific and technical support for accelerated development of the productive forces of Siberia is a task for scientists throughout the country. But a major role in solving the multifaceted and complicated problems that exist here should undoubtedly be played by scientific institutions located in the region. After all, the majority of these problems are of a specific regional nature.

The experience in the organization of science in the USSR has confirmed the correctness of the course toward forming a considerable scientific and technical potential in large economic regions. The creation of the Siberian branch of the USSR Academy of Sciences exerted and still does exert an essential influence on the development of productive forces, public education and culture of the eastern regions of the USSR. Today the Siberian branch is a developing system of scientific centers which are located in Novosibirsk, Irkutsk, Krasnoyarsk, Tomsk, Yakutsk, and Ulan-Ude, institutes in Kemerovo and Chita, and to divisions in Barnaul, Kyzil, Omsk and Tyumen.

In addition to the academic potential there is a large scientific research potential of branch and VUZ science in the region. A total of about 500 scientific research and planning institutes (or branches of them) and VUZes with an overall number at about 200,000 workers are functioning on the territory of Siberia. They include 28 academicians and 50 corresponding members of the USSR Academy of Sciences, 1,800 doctors of sciences and more than 25,000 candidates of sciences.

Scientists of Siberia are making an appreciable contribution to the development of Soviet and world science. Their achievements in the area of fundamental research are widely known. They were the basis for large research and applied projects which resulted in the creation and assimilation of principally new technological and technical solutions in the national economy. During the past 10 years academic institutes have turned over more than 900 developments to the ministries and departments, and the effect from their introduction exceeded 2 billion rubles.

One can note with satisfaction that the agreements for cooperation concluded between the Siberian branch and several of our ministries and departments--of geology, agriculture and forestry, public health, and higher and secondary specialized education--turned out to be an effective form. The branch has long-term program agreements with a total of 24 ministries of union and republic jurisdiction.

The Siberian divisions of the Academy of Sciences and VASKhNIL have turned over to the union and republic ministries and departments a considerable number of developments to be included in the plans for the 12th Five-Year Plan. A number of the developments that have been offered have been included in the plans for the economic and social development of the country and the republic, and it has been recommended that the rest be included in the branch plans of the ministries and departments.

We have not yet managed to direct academic science in the proper degree toward solving problems facing branches of the national economy. On the whole the level of interaction of the division with the republic ministries cannot be called satisfactory.

Life demands we increase, and increase significantly, the contribution of scientists to the acceleration of the rates of socioeconomic development. And to do this it is necessary to make a decisive turnabout of science in the direction of the needs of public production, and production--toward science, and we must strengthen all links that join together science, technology and production. This is precisely what was indicated quite definitely at the June Conference of the CPSU Central Committee.

The most vulnerable spot in the cycle of "science-production" is the introduction of the results of research. Although recently a good deal has been done to improve the organizational forms of the unification of science and production, "monolithic fusion" of these, which V. I. Lenin discussed, has not yet been achieved.

As early as the 1970's a number of ministries created in the Novosibirsk Akademgorodok 11 branch scientific research institutes and design bureaus--the so-called "introduction belt." It was assumed that they would take on the task of bringing the development of academic institutions to production and solve the problem of extensive utilization of innovations.

Unfortunately, this belt, figuratively speaking, did not "bind" all organizations and problems together into one. The branch design bureaus are drawn toward the development of subjects which can be resolved in a short

period of time, toward a relatively narrow specialization in the formation of a range of their own particular interests. But academic science needs a very maneuverable experimental design base which is not enclosed within the framework of the interests of a single branch since the majority of problems that are resolved are of an interdepartmental nature. They must think about how best to coordinate their actions.

The party considers it necessary to strengthen the experimental-testing and planning-design base of science and to improve the organizational-economic forums of integration of science, technology and production. The role of the powerful experimental and testing base is well-illustrated by the example of the Institute of Nuclear Physics of the Siberian Branch of the USSR Academy of Sciences. The experimental production of this institute has delivered dozens of electron accelerators to various branches of the national economy and also for export. A fairly powerful experimental industrial base is being created for the scientific and technical complex on the basis of the Institute of Optics of the Atmosphere at the Tomsk Scientific Center of the Siberian Branch of the USSR Academy of Sciences. This work must be continued in the future. In this connection the most constant attention should be given to the experience of the Institute of Electric Welding imeni Ye. O. Paton for creating interdepartmental engineering and technical centers for various areas of investigation.

Undoubtedly, an important form of interaction between science and industry is the formation of temporary collectives. One of these collectives, which were first created in our country, was "Start" which was formed in April of this year on the basis of the computer center of the Siberian branch and a number of other subdivisions for processing an experimental verification of elements of the fifth generation of computers. This experience deserves support and dissemination.

Such, comrades, are the issues on which I should like to hear your opinion today.

Allow me to express my confidence that the scientists and specialists of the national economy, party and soviet organizations, and interested ministries and departments of the Russian Federation will multiply their efforts in solving the crucial problems related to the development of the productive forces of Siberia.

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DIRECTOR OF SAYANSK ALUMINUM PLANT INTERVIEWED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 1, Jan 86 pp 73-89

[Interview with V. V. Strigo, director of the Sayansk Aluminum Plant, by T. R. Boldyreva: "Heavy Aluminum"]

[Text] [Question] The startup of the plant's capacities was envisioned by the decisions of the 26th CPSU Congress. To what extent are they being carried out? Has a lot been done?

[Answer] The construction site of the enterprise is located on the bank of the Yenisey, in the Khakass steppes. As distinct from other aluminum plants in Siberia, which have been constructed in more or less inhabited regions, the SaAZ was started in a practically empty expanse. On 9 May 1985 we received our first commercial aluminum and during that same year introduced the first startup complex--the electrolysis shop and the auxiliary productions. These include energy and warehouse facilities, a boiler plant, repair services, a shop for nonstandard equipment and so forth. According to the plan large startup complexes will be introduced for electrolysis and production of roasted anodes. By the end of 1985 a quarter of a million rubles' worth of capital investments had been assimilated.

[Question] If we are not mistaken SaAZ is the fifth Siberian aluminum plant and the fourth in eastern Siberia. What distinguishes it from its predecessors?

[Answer] A new plant must always be a new step in the development of technical equipment and technology. If one compares the SaAZ with the giants of the aluminum industry, in terms of production volumes it will occupy only third place, but according to the plan it is to have the highest technical and economic indicators in the branch, including--which is especially important--proportional ones. The highest unit capacity of the basic technological equipment--electrolyzers. Consequently, the output of metal per square meter of production space is also high.

[Question] How is this achieved?

[Answer] All these advantages are provided by electrolysis of aluminum with roasted anodes. This technological process has long been known, it was applied at the Volkhov Plant which was put into operation in the 1950's. This area was not developed then since the production of roasted anodes was complicated and expensive, but our country returned to it at the end of the 1960's.

This technology makes it possible to reduce the expenditure of electric energy and raw material per ton of aluminum. And the main thing is that it is possible to obtain higher quality metal, which is produced in small quantities at other plants. It becomes possible to automate the process. This significantly reduces labor expenditures. At the SaAZ they have planned the highest level of automation in the subbranch. And, finally, last but not least is that the production of aluminum by this technology can be ecologically pure.

We are accustomed to considering aluminum production to be harmful to the environment. But at SaAZ the sealed covering of the electrolytes makes it possible to catch the gases that are formed during the smelting of metal and transfer them to the gas purifier, which guarantees practically complete purification of them. This is also economical--the valuable fluorine salts that are caught in the filters return to industrial circulation. Working conditions in electrolysis production are improving. Thus the system of gas purification is the first in the branch. The plants will also have better water purification (closed water circulation). We will be the first in the country to apply the new electric aggregate rectifiers with increased current.

[Question] How successfully are these progressive technological solutions being realized?

[Answer] So far the plant is just under construction. At the June (1985) Conference on Acceleration of Scientific and Technical Progress M. S. Gorbachev discussed the Krasnoyarsk Construction Sites: "As a result of the dispersion of forces construction is proceeding slowly and the losses of resources are great.... In the future the state will spare no funds for the development of Siberia. But we have a right to demand that they produce a return and not be frozen." And the Sayansk Aluminum Plant is really an illustration of these words. Judge for yourself: the first work at the construction site was started in 1976. The introduction of the first startup complex of the plant was intended for 1984, but it will be introduced in 1985. The first 6 years of construction proceeded slowly, and only 3-5 million rubles were assimilated each year. In 1985 this volume of construction was collated in a month.

[Question] What are the reasons for such slow construction?

[Answer] They are not original. We are not the only ones who are slow in construction work; other projects in Krasnoyarsk Kray--the Abakan Car Plant, the Minusinsk Electrical Equipment Complex and even the Sayano-Shushenskaya GES are slow as well. The capacities of construction organizations in the kray were not sufficient for rapid performance of such a large volume of work, the more so since the plant and the city were being constructed at the same

time. Organizations of Glavkrasnoyarskstroy were not capable of handling these volumes with the large number of projects scattered throughout the kray. Collectives of construction workers were created for SaAZ and then again disintegrated, having neither a construction base nor the necessary organization of management. Considerable funds, however, were allotted for the construction base--about \$40 million. But they were assimilated at bases of Glavkrasnoyarskstroy outside the main construction site. There is no doubt that the delay with the plan also had an effect--it was not finally approved until 1984. In the end the Sayanolyumintyazhstroy Trust was created 5 years late. Things began to go better, but the plan for construction and installation work was still not fulfilled before 1985. And since the construction workers had not assimilated the funds that had been allotted, the planning agencies cut them. These funds which were not assimilated were not carried over until the next year and so they were lost. The startup complex remained with the previous volume, but the fulfillment of construction and installation work lagged behind. It was subsequently necessary to revise the list of objects and to transfer those that did not affect the technology of the process to the next startup complex. This included half of the aluminum warehouse and the shop for repairing hitch trucks. Reliable energy supply was basically maintained and was introduced in stages but according to a permanent system.

[Question] The development of construction work in 1985 makes it possible to think that the startup of other complexes in the first section will proceed more rapidly.

[Answer] The work really does go rapidly when the construction project is declared to be a startup project. All the necessary equipment is gathered here, the rates increase, and on certain sections the work is done 24 hours a day. The "good" old schedule: first a long hibernation, then an awakening and--fervent activity. But this is not the way the state wishes it to be done. So much equipment is frozen...and how does the client feel? Take the shop for roasted anodes. So far we have been shipping in the anodes from the Tajik Aluminum Plant. This is inefficient. It is necessary to construct our own shop for roasted anodes immediately, the more so since in 1986 the guarantee on imported equipment will run out and there is no place to install it. In 1986 it will be necessary to put into operation the shop's first line, and during the next 2 years--the second and third. The volume of construction and installation work for starting up the first line of the shop for roasted anodes exceeds 80 million rubles, and at the same time it is necessary to prepare the second electrolysis facility for startup. With this kind of organization of the work at the construction site, as we have now, the plant's directors have no special confidence that everything will go all right.

[Question] Vasilii Venediktovich, you were the head engineer and then the director of the Krasnoyarsk Aluminum Plant and you constructed that plant. Do you have a sense of any changes taking place in capital construction?

[Answer] Many difficulties from which the plant will suffer later originate in the stage of construction. And although we all know this, nonetheless they seem to repeat themselves. Take, for example, auxiliary production. According to the plan at the SaAZ it is considerably greater--both in terms of

cost and in terms of the quantity of the facilities that are being introduced, than at other aluminum plants. Unfortunately, the auxiliary facilities frequently are pushed into the background for the sake of the startup of the basic capacities. We have managed to achieve more rapid startup of the powerful repair shops, the shop for producing nonstandard equipment, and the warehouses, without which the equipment is easily destroyed.

Our entire technological chain is in operation: the silicon transformer substation, the compressor, the nitrogen-oxygen station, the warehouse, the receiving equipment for aluminum, and the verification installations. Almost all of them are operating under permanent conditions and at full capacity. If one is to look at the plan for the plant as a whole, the only shops that have not been put into operation are those for electrolysis, smelting production and the shop for roasted anodes. This creates a reliable basis for starting up the shops in the basic production, that is, measures have been taken for creating a reliable rear guard. This rear guard also includes the shop for roasted anodes which we have begun to construct and will put into operation in 1986. But I wish to note that this policy for construction is not easy and not without consequences for those who organize such a plan for construction. Here is the reverse side of the coin: having provided for the plan's rear guard we must take measures for accelerated construction of the basic production or else the activity of the plant will be unprofitable for a long period of time.

[Question] How, in your opinion, should a new enterprise be constructed? If you were to begin to construct one more plant would you construct it differently or in the same way?

[Answer] I could suggest a somewhat different plan. The main thing is to determine the long-range prospects and the program for the construction of the plant, for example, for 10 years, and put everything into the hands of a single group--the directors, who have been given all rights concerning construction. Initially at the level of the Gosplan in the ministry it is necessary to formulate the task--say, we need a plant with a certain volume of output of aluminum in a certain region with a production cost that is lower than the branch average. And further I think that it is necessary to find a candidate to be the director who will construct this shop. From several candidates they can select who will become the director (and I will return to this question later). He selects his assistants--as many and of the kinds he needs, but they should not be appointed for him. The directors are given all rights for constructing the plant. The client directors have the right, with the participation of the planning institute or through their own forces, to develop and adjust the technical assignment for the plant that is under construction. By a decision of the central agencies they determine the time periods for construction and, roughly, the final indicators, expenditures and so forth. The directors develop and approve the plan for construction and installation, recommend contractors and handle the funds independently. And nobody has the right to interfere with them any more.

[Question] Even the Stroybank?

[Answer] Least of all it. The Stroybank carries out financial operations between the client and the contractors on the basis of approved documents. If the manager of the enterprise under construction has been entrusted to manage a many-million-dollar business, then why hold him by the hand all the time? The plan was made several years ago, in some ways has already become obsolete, and changes are needed, but the Stroybank has only one motivation: no deviations from the documentation! "Trivial" supervision of an enterprise that is under construction from the higher organizations leads to many losses. I as director actually do not have the right to change things in the way they must be changed if I proceed from the long-range plan for construction. Nor can it be changed by the builders who live by the year, the quarter and sometimes even the day. Except for the norms for construction that are determined by the USSR Gosstroy and except for the control over the final assimilation of the estimated cost of the new enterprise, I do not think that there should be any external intervention in the affairs of the directors. And the directors should be confident that all of the capital investments allotted will be at their disposal. This financial confidence of the client opens up the prospects for the construction workers as well. For now they frequently have to guess whether or not their capacities will be increased and whether the construction industry will develop or not. As soon as the construction project is completed a smoothly operating collective of many thousands disintegrates. So much money is frozen this way and so much equipment accumulates in the warehouses...all this is gross mismanagement.

[Question] The lack of financial independence for the client of an enterprise that is under construction, apparently, has an effect on relations not only with the construction workers, but also with the designers of equipment and technology.

[Answer] Undoubtedly. The technical and economic substantiation for our construction was done by the All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry (VAMI) in 1969. It envisioned technological solutions that were new for the branch at that time. There was no experience in this kind of production in the country.

Electrolyzers with roasted anodes replaced our aggregates with self-roasting anodes and upper current supply. In the middle of the 1960's, when we introduced the Krasnoyarsk and Bratsk plants, a principally different technology was being widely used abroad--with roasted anodes. I have discussed its advantages but I think that the main role here in its rapid introduction was played by the energy crisis which increased the significance of economizing on energy. We were also attracted by the possibility of automation and the ecological cleanliness. There were very many debates regarding the introduction of new designs of electrolyzers for the SaAZ and in these debates it was impossible to defend something simply because the VAMI Institute had the last word and not the plant directors. Although even then there were positive examples of the construction of large enterprises in our country: the Norilsk Combine, the Volga Automotive Plant and others where the role of the general planner was filled by the plant or the combine.

[Question] The main technological equipment for the SaAZ--electrolyzers--were not purchased abroad. And there should be no difficulties with them....

[Answer] The electrolyzers with roasted anodes have confirmed the future of this trend. But the experimental designs were not properly tested and were immediately used as industrial designs. As a result, the analogues of the electrolyzers for 175 kiloamperes which were supplied for the first sections that were opened up did not function very well at the Tajik Plant: labor intensiveness was high--almost a third greater than was planned for us. The expenditure of electric energy increased and was as great as it was for the preceding technology. And the reduction of the expenditure of electric energy per ton of output is one of the essential advantages of electrolysis with roasted anodes. Other indicators were also far from those planned at the TadAZ. The equipment was not functioning properly. The design of the housing was poor, but like the automated system for feeding in the aluminum, it worked all right at the TadAZ and was included in industrial series production. The new system of leads which was tested at the Tajik plant on four sets of equipment did not display its advantages and disadvantages clearly, and it was not even clear what its indicators were. Work under automated conditions was not mastered at the Tajik plant. And this is very important: an electrolyzer is not simply a bath for smelting metal; it is a complicated complex of highly mechanized equipment that operates in tandem. In the VAMI they think that everything has to do with local conditions, and I do not think that one can forget about them, but the design of the aggregates themselves is far from perfect. In the report by Comrade M. S. Gorbachev at the conference on questions of accelerating scientific and technical progress (June 1985) he pointed out shortcomings in the powerful electrolyzers that were constructed by the VAMI. It was noted that because of the design mistakes they work with greatly excessive expenditure of electric energy as compared to the planned indicator, and additional millions of rubles would be necessary to rectify these installations.

Our buildings, beginning with the fifth one, will be equipped with electrolyzers for 255 kiloamperes. At TadAZ they are working under emergency conditions, and 15-20 percent of the equipment is regularly in repair. If the design is not perfected immense losses are inevitable. I think that the VAMI has been staying in the same place for 20 years, slightly improving one trivial thing and then another. Therefore the new plants are growing slowly when it comes to technical equipment.

[Question] And what position does the plant take? Will you wait until the designs are improved? What can you do now?

[Answer] I think that problems of scientific and technical progress should be solved more boldly in the local areas and we should be oriented more toward plant science. The course toward strengthening the plant sector of science and the introduction of branch institutes and planning-design divisions as part of associations and enterprises was approved at the June (1985) Conference on Questions of Accelerating Scientific and Technical Progress. We still have our eyes turned to VAMI, to Leningrad all the time: there are 4,000 people there, science is there... but the institute, in my opinion, has lost its decisive role, although it still holds the monopoly. Nothing can be done without the supervision of the VAMI and there they think that everything suggested locally is poor.

Plant specialists have now developed a new design for a detachable cover and we are equipping the first electrolysis facility with aggregates that have covers designed by the plant, which are better sealed. And the cleanliness of the atmosphere in the shop depends on how they are sealed. The planned variant did not suit us and we had to use the design proposed by the plant. We are also testing experimental designs with new systems for feeding in the aluminum. The plant has created a creative group for developing and testing new designs for electrolyzers with comprehensive mechanization and automation of technological processes. They are currently being manufactured and assembled.

[Question] What hopes do you place in the new designs for sets of this equipment?

[Answer] Without research it is difficult to reach the required indicators. And here is what bothers me. For the time being our production will be planned to move money. This is understandable: immense amounts of money have been spent on the construction and on auxiliary facilities, but we are just beginning to produce products. But the TadAZ is also operating at a loss and it has been in operation for 10 years. The technology with roasted anodes itself is more expensive: the imported equipment for the production of the anodes is costly. And the means of mechanization and automation produce an effect only if one keeps them in mind. Then it is possible to reduce labor-intensiveness and, consequently, production costs, but otherwise this is a factor which increases costs. The advantages of the new technology do not give us paths to deviation. But the products will inevitably be more expensive. We are testing new designs with modern technology and we are devoting maximum attention to automation so that in the new facilities we will officially increase the output of products from the same areas. Now, in order to accelerate the return of money, it is necessary as quickly as possible after the startup of the shops for roasted anodes to introduce new electrolysis facilities with effective technological equipment and also to increase the construction capacities for this.

[Question] To construct and put a plant into operation and at the same time to update the equipment through your own forces and to develop the designs for the main sets of equipment--this is not an easy path. Why have you been forced to do this and how can you change the situation?

[Answer] We have fallen behind world practice when it comes to electrolysis technology. I think the reason is this. In our subbranch one institute has a monopoly on all scientific research on aluminum. This does not help things and it is because of this, in my opinion, that we have fallen behind world practice with respect to new technology. In the VAMI, as in many branch institutes, science and practice are far away from one another, the scientific part by itself and the planning part by itself. Scientific topics are planned and they are worked on for years. Then they are discussed in the technical council and put on the shelf.

Yet world practice shows that, with the exception of fundamental research, it is inexpedient to plan scientific research separate from production. In

foreign countries they extensively utilize the creation of the plan as a form of introduction of new technical equipment. The plan includes all stages from the beginning of research to the industrial model which is to be introduced at a specific enterprise. All the equipment should be included in the technological chain. But in our country a crane purchased in Czechoslovakia cannot be used to cast metal because the VAMI has not envisioned sufficient lifting capacity. It is necessary for the enterprise itself to "order the music." This is why I am in favor of financial independence of the client. The most efficient path, in my opinion, is not to rely on the head institutes in the branch which, because of their monopolistic position and their remoteness from the needs of the enterprises, do not do everything necessary for their most rapid development, and we should organize powerful scientific production associations in the local areas. Such an NPO can be created on the basis of the aluminum plants of Eastern Siberia, including in it research and design units and a strong experimental production.

I as director think that if we can find some thread then all of the activity of the industrial enterprises can be changed over to a purely economic basis, to complete self-payment. Only the production of products and profit should be planned from above. For instance, our plant should produce a certain amount of products and profit--no less than a particular sum. This is our obligation to the state, our plan. We do not need any other indicators, the more so since the majority of them do not give a realistic picture. There is no point in them: this is our internal economic activity. There is no need to supervise every step and count every ruble in our hands. Now all this money has "labels": this ruble--for housing, that one--for the development of production, that one--for the fifth--that one--for the 10th.... At one time this was justified: it was necessary first of all to develop production, sharply limiting everything else. There is no longer any point to this; the enterprise should decide for itself where to invest its money, depending on what is more important. It should have money in the bank so that it can accumulate it, acquire new equipment, construct a recreation base, housing and so forth. Without this it is difficult to attract qualified workers, especially to a new enterprise.

The enterprise itself will be interested in additional output of products if it knows that it will be able to construct, for example, a building. Then the workers can also be mobilized. Everyone knows that if he has saved something it will go to the collective. Up to now nobody feels how the losses of the enterprise affect them personally. A person comes in and requests an apartment and I cannot say anything to him.

If everyone does not feel the enterprise's losses in his pockets it is difficult to economize on resources. Everyone conceals reserves because tomorrow they will have a larger plan. One person makes a profit and the money goes to another. The enterprise should earn its money through its own labor; why ask for it from the state? An experiment is now being conducted at the VAZ and the SUNY Machine-Building Association: from each ruble of profit 70 kopecks remain at the disposal of the enterprise and it spends this money for its own needs. I think that such a system should be extended as quickly as possible to all enterprises. This will produce a great national economic effect.

An expansion of the rights of production associations and enterprises is also envisioned by the decree of the CPSU Central Committee and USSR Council of Ministers, "On Extensive Dissemination of New Methods of Management and the Strengthening of Their Influence on the Acceleration of Scientific and Technical Progress" (1985).

[Question] And what position will the VPO hold?

[Answer] Judging from our subbranch these are the inheritors of the main boards, and only the name has been changed. And in terms of their functions they are a continuation of the ministry staff. Their element is planning, reporting and control, but they do not engage very much in technical progress or organization of labor. It is better to create associations locally, as I have already said. They would take up issues which are not being resolved today: repair, training of personnel at all levels, construction of recreation bases, dispensaries, financial affairs and so forth. The VPO itself does not have any funds and serves only as an intermediate link or it redistributes the funds of the enterprises. And in the local areas it is easier to see who needs what.

[Question] But is it necessary to increase the role of the director for this?

[Answer] Of course. Now their hands and legs are tied. There is a flow of contradictory instructions. A girl from the bank with instructions in her hand intervenes in how the money is to be used. Then they have these instructions and the director does not; he does not even know about them. Technical progress is a large problem. The institute works poorly--everything hides behind it and it seems that nobody is responsible: they are the head institutes and they have science. If the director takes responsibility they say: he is a partisan, that is adventurism, we cannot have it! In general the desire to plan everything down to the finest detail has reached the absurd. They plan the extraction of gravel and sand for the construction workers, and here it is right under our feet. But if they have not planned it then we cannot use it: a wage fund is needed. We have to organize a section, if only of five people--and they say to us: there is a local construction materials industry, they should give it to you. But it is not large enough! Therefore we use our local resources poorly, and "for sand" we have to go to Moscow, run around and prove that we need it.

[Question] But local resources can be used on the basis of cooperative productions in the TPK....

[Answer] You would think so.... But nothing can break us out of departmental clutches.. It is necessary to develop various productions at one site--metallurgy, machine building, energy engineering--and to cooperate with the infrastructure and the construction of cities and objects for social, cultural and domestic purposes. Now Sayanogorsk is probably the most spread-out city in the country. It includes three villages which are located many kilometers away from one another. Each has its own social and domestic facilities. Cheremushki has its own fabulous palace of culture and we are building our own. And yet each director during his entire life can construct only one such

palace because they are so difficult. Moreover, when there are several of them, in the neighborhood they are poorly utilized. The Soviets should play a real role in the construction of housing. But now the ispolkom participates only to give orders and takes up time for hearing them. Enterprises under various departments operate their own housing, even though this is not their business. So there are too many cooks who are spoiling the broth: many cities are dirty, poorly arranged and not comprehensively built up. And what they should do is this: an enterprise, having accumulated money, turns it over to the Soviets and they construct everything comprehensively, with the infrastructure and social, cultural and domestic facilities. The maintenance of housing should also be placed in their hands. And the same thing with trade--what is the system of ORS's and URS's for? It is necessary to have a unified trade division for the entire city.

[Question] But how is the problem of material and technical supply being solved now? Is there cooperation within the TPK?

[Answer] We have no large complaints against the suppliers, but there is so much red tape and unnecessary work! We must justify our orders to the supply administrations of the ministries, the Gosplan and the territorial agencies. Here I prefer the system of supply through the local territorial agencies.

[Question] At the new enterprise, apparently, it is possible to introduce new systems of management and labor as well?

[Answer] From the first years, when the plant was not yet producing products, we began to think about a comprehensive system of management. This system has already been partially introduced at the plant. The planning is carried out dynamically from four balanced positions: a) output, b) raw materials, processed materials and services, c) equipment and d) personnel. They say that a well-balanced plan is already half-fulfilled. Our calendar operations schedule makes it possible to eliminate confusion. Sometimes all the lack of coordination and omissions are explained by the lack of raw materials, processed materials and so forth. The schedule shows whether this is the case or not, what has not been done and who is to blame. It frequently happens that the plan is an entity unto itself, and production life is an entity unto itself. But for us any measure, even a long-term one, is written into the schedule, and we know specifically who is to carry it out and when. The system can be transferred to a machine and it is possible to create an automated system for management of production.

But it is still necessary to coordinate with the "outside world"--the plans which are adjusted by the higher organizations and the allotment of resources. All the necessary resources for the production program should be planned and allotted in a balanced and dynamic form for the enterprise.

The absence of normatives for many kinds of expenditures also impedes the introduction of our system.

Our system has not yet been completely worked out and we shall have to perfect it. I think that in the organization of labor and management the managers could receive invaluable assistance from cost-accounting firms which could

take advantage of everything that is advanced, consult and introduce innovations without imposing them on the collective, but convincing them and proving to them that this is advantageous.

[Question] The top manager plays an irreplaceable role in the introduction of everything that is new. A great deal depends on his knowledge, energy, persistence and feeling for what is new. We have already discussed increasing the role of the director. But where does one find directors who would be, as they say, "on this level" and how does one prepare them for their position?

[Answer] I think that the approach needs to be changed here. Let us take the selection of top managers. About 10 years ago scientific organization of labor was in fashion and questionnaires were circulated concerning candidates for managers. Now the selection has been turned over to secretaries. They do not study people in depth. The reserve for advancement is almost a formality. But I think that we should prepare several candidates for the position of director and then arrange a competition. We should ask how they view the development of the plant and what they intend to do. Everyone who wishes could submit his own candidacy and his own programs. But this has not been accepted, unfortunately. It is also important for the individual to wish to be in charge of the collective and to have ideas. But they do not ask him about this. The management of the subbranch does not know and is not interested in how the top manager regards the problems, how he intends to resolve them, or how he feels he can develop technical progress. I, for example, think that it is possible to double the capacities of our plant. Perhaps I am wrong, but nobody has discussed this idea with me and nobody is interested in my ideas, even though I have presented them. Moreover, the directors are appointed on the spur of the moment. But it is necessary to prepare a person and train him so that he knows all of his rights, responsibilities and instructions. It would be good to include this all in a single volume and create the kind of "directorial talmud" which must be memorized verbatim. And they should learn this before entering the position; for then frantic activity begins and there is no time to look around. It seems to be an elementary truth: do not put an untrained person in a job. But we do not always observe this, from the director down to the ordinary worker.

[Question] There are various systems of training management personnel. Institutes for increasing qualifications have been created in all ministries. Are they really insufficient?

[Answer] I went through two training sessions--I studied network planning for 15 days and there were also month-long courses for increasing qualifications. I learned little that was new regarding economics and organization of labor. But the main thing is that we taught the manager something. But he goes to his old position and becomes submerged in his previous problems--and everything begins in the old way. It should be possible to introduce everything that is new. But the conditions for this do not yet exist. For example, we wanted to borrow the VAZ principle: to centralize auxiliary services. The principle is effective, but we have managed to apply it only partially: we have centralized capital repair, but when it came to current repair there was a hitch because the repair workers in the shops are given

various benefits and increments, and with centralization of repair services they are deprived of these rights although the work remains the same as it was. This is only one example, but one could give many.

[Question] And the last question. The first startup complex has been put into operation and the first line of the shop for roasted anodes is being prepared for introduction in 1986. What tasks will the collective have to face in this stage.

[Answer] The tasks are very serious and responsible, both for the client and for the construction and installation workers. In a short period of time it will be necessary to assemble the buildings, to outfit them with equipment, and the client will have to train personnel, do adjustments and provide for the output of their own product--roasted anodes and aluminum. We shall periodically inform the magazine about the solutions to these problems and the courts of our work.

From the Editorial Staff

The state of affairs in the construction of the Sayansk Aluminum Plant is causing concern. The need for its construction was recorded in the draft of the Basic Directions for the Economic and Social Development of the USSR During 1986-1990 and the Period Up to the Year 2000. It is necessary to accelerate the return from the invested money and provide aluminum for the country. We are turning to the USSR Gosplan, the USSR Ministry of Nonferrous Metallurgy, the USSR Ministry of Heavy Construction and the USSR Ministry of Installation and Special Construction Work as well as the Soyuzalyuminiy VPO with the request to consider the situation and accelerate the construction and installation of equipment and automation devices.

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COLLECTIVE CONTRACT FUNCTIONS ON LARGE SCALE

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 1, Jan 86 pp 90-91

[Introduction to articles that follow: "A Second Wind for the Contract"]

[Text] The decree of the CPSU Central Committee, "On Further Development and Increased Effectiveness of the Brigade Form of Organization and Stimulation of Labor in Industry," adopted in December 1983, points out the need to study new tendencies systematically and to determine the prospects for further development of the brigade form of labor organization and, in connection with this, to experiment with it more extensively.

At the July Conference of the CPSU Central Committee concerning the acceleration of scientific and technical progress, when setting the task for the enterprises and associations to earn for themselves the money necessary to raise the technical level of production and improve product quality as well as for social development, General Secretary of the CPSU Central Committee M. S. Gorbachev emphasized the role of the collective contract in carrying out this task: "It is very important to establish a close dependency between the results of the work of the collectives and their wages. It is important to proceed more boldly toward extending the principles of the collective contract to the activity of associations and enterprises and actively creating consolidated comprehensive cost-accounting brigades."

A principally new and promising direction is the application of the brigade contract in large collectives--sections, shops and so forth--including in it brigades of engineering and technical personnel. The first such collective was created more than 14 years ago at the Elektrosignal Plant in Novosibirsk. There are now 27 contract collectives at this enterprise. The experience of the Elektrosignal Plant lay at the basis of the Novosibirsk Experiment on the collective contract in which 15 enterprises of various branches of the national economy are participating.

The goal of the experiment is to reveal during 1984-1985 the forms and methods of the collective contract which are most effective from the economic and social standpoint at a higher level of organization than the brigade--sections, shops and so forth, which would contribute to increasing the collective interest in the final result of production, bringing individual and

collective interests closer together, increasing the labor and social activity of the workers, and expanding the democratic foundations in management.

The distinguishing features of the collective contract at Novosibirsk enterprises are:

the collective form of organization and payment for labor is applied at higher levels than the brigade--in large production sections, technological flow lines, shops and, in the future, in productions and entire enterprises;

the contract collectives include all workers of the subdivision that has been changed over to the contract: basic workers, auxiliary workers and service personnel, engineering and technical personnel and employees;

the wages for all categories of workers in the contract collective are paid according to a single principle--on the basis of long-term normatives for wages per unit of output or for the performance of a volume of work, taking into account the collective and individual contributions of each member of the collective to the final results;

the production activity of the contract collective is carried out on the basis of an agreement concluded with the administration for the period of the experiment or for the current year. The interrelations between the contract collective and the administration and associated production subdivisions should be arranged on principles of intraplant cost accounting.

The experiment in Novosibirsk has been conducted under the aegis of the USSR State Committee for Labor and Social Problems and the AUCCTU since 1984. Its first results, problems and prospects were discussed at a meeting of the EKO directors' club in Novosibirsk which took place that time at the Elektrosignal Plant--the originator of the experiment. The meeting was conducted by the editor in chief of the magazine, Academician A. G. Aganbegyan.

The materials from this discussion are offered for the readers' attention.

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CSO: 1820/60

COORDINATION OF INDIVIDUAL AND PUBLIC INTERESTS URGED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 1, Jan 86 pp 92-106

[Article by B. P. Kutyrev, candidate of economic sciences, Institute of Economics and Organization of Industrial Production of the Siberian Branch of the USSR Academy of Sciences (Novosibirsk): "Joining Individual and Social Interests"]

[Text] At the conference of the CPSU Central Committee concerning questions of scientific and technical progress on 11 June 1985 it was noted that the task of accelerating socioeconomic development presupposes, in particular, the utilization of effective forms of management, organization and incentives for labor.¹ Initiative from below is becoming very important for carrying out this task, in our case--the experience of the section for small series of the framework stamping shop of the Elektrosignal Plant (it will be discussed in more detail by the plant director, F. F. Shevelev).² The initiative was supported by the party obkom and oblispolkom which instructed scientific institutions of Novosibirsk to investigate the possibilities of further development of collective forms of organization and incentives for labor, taking advantage of the experience of Elektrosignal.

In the summer of 1983 a special commission of the USSR State Committee for Labor and Social Problems and the AUCCTU which was sent to Novosibirsk studied this experience, and since January 1984 in 15 associations, enterprises and organizations of Novosibirsk Oblast an experiment had been conducted on the application of the collective contract in sections, shops and other structural subdivisions.³ In addition to those already mentioned they selected such subdivisions as technological flowlines, shifts at the Inskaya Railroad Station, the Novost Factory, and the Novosibirskoblkhimchistka Association--a total of approximately 4,000 workers, of whom about 500 were engineering and technical personnel in industry, construction, transportation, agriculture and consumer services.

The goal of the experiment was to test the forms and kinds of the collective contract that were most effective from the social and economic standpoint at organizational levels higher than the brigade. In substantiating the goal it was suggested that the extension of the fundamentals of collective forms of organization and stimulation of labor sequentially to the section, shop,

enterprise and even entire organizational levels should contribute to a radical solution to the problem of bringing individual and social interests closer together and increasing the interest of all workers in the final results of the activity of the primary units and the largest subdivisions of the socialist national economy. The transformation of collective forms of organization and stimulation of labor into "all-around," "all-embracing" forms, in the opinion of the chairman of the USSR State Committee for Labor and Social Problems, Yu. P. Batalin (he visited Novosibirsk in June 1984) is like the ascending line, the countermovement from below in measures for improving the economic mechanism.

The collective contract which is being introduced in the sections and shops is directed toward solving the most crucial problems. One of them is increasing the volumes of production of individual kinds of products and services which are in great demand. For example, 80 percent of the unionwide demand for clamping instruments is satisfied by Contract Shop No 10 of the Novosibirsk Instrument Plant. It is expedient to orient the collective toward increasing the volumes of output. Another variant of the problem: the reduction of the number of workers and, thus, the personnel shortage. The third variant: it is necessary to improve product quality, particularly at such enterprises as the Ob Leather Footwear Association, and the Severyanka and Sorevnovaniye Sewing Associations. The introduction of the collective contract is also linked to the solution of problems of economizing on material resources, developing labor discipline, reducing labor turnover and so forth.

Special significance is attached to the formulation of such tasks as the development of collectivism, an economical attitude toward socialist property, expansion of democratic foundations in management, elimination of social differences, and increased labor and social activity of members of contract subdivisions. These subjects are also included in the methodological program for investigating the course and results of the experiment.

The corresponding conditions were envisioned for the achievement of the goals and tasks that were set:

the contract collective includes everyone employed in it, including basic and auxiliary workers, specialists and managers. Besides direct inclusion it is also possible to enlist workers, specialists and consultants for a limited time--on the basis of an agreement with the collective; individual collectives can also do this;

the activity of the contract subdivision is arranged on the basis of an agreement with the administration along with the agreement with the management of the enterprise, and it becomes expedient to conclude agreements with associates (suppliers and consumers), divisions and services, and also sections, brigades and individual members of the collective within the contract subdivision;

in order to determine the wage fund for the collective they calculate and establish a long-term stable normative of payment per unit of output or work. The stability presupposes accounting for the assignments for reducing labor-intensiveness;

the entire wage fund for industrial output of a particular quality or the performance of a volume of work with a guarantee remains in effect for the collective regardless of the number of workers it takes to produce the products or perform the work. This means that the collective can freely maneuver its own personnel and assignments, depending on the changes in the conditions for production and the desire to raise the level of the average wages. This condition is intended for orienting the workers toward a sharp reduction of the number of personnel.

By decision of the collective, all kinds of earnings, including basic ones, can be distributed taking into account the individual contribution of each member of the collective to the overall results, with the application of the coefficient of labor participation (KTU). Here the minimum amount of wages is determined by the wage rate for the category for the amount of time worked and the salary, with the exception of cases stipulated by labor legislation (failure to fulfill output norms, defective production work and down time which is the worker's fault, and so forth);

the collective arranges its activity with mandatory application of the principles of cost accounting;

for interaction with the administration the solutions to internal problems are selected by the council of the contract collective.

Many of the conditions listed here are not new. Thus maintaining the overall earnings regardless of the number of workers was introduced with the Shchekino method. At the same time, in order for the negative lessons of this method not to be repeated, we have introduced as a mandatory condition the establishment of a long-term and stable normative for payment per unit of output or work, which guarantees the collective remuneration for the efforts it makes. A good deal has been taken from the conditions of the brigade form of organization and payment for labor. It must be taken into account, however, that the inclusion of specialists and managers in the brigade was not approved until 1984, by a decree of the USSR State Committee for Labor and Social Problems and the Secretariat of the AUCCTU, when the experiment was already in full swing.

The uniqueness of the conditions of the Novosibirsk experiment lies mainly in their totality. In addition to this there are also individual specific features. For example, attention is drawn to the condition for distributing the general collective earnings. Attentive consideration of the standard provisions shows that a serious obstacle has been raised and extensive possibilities have been offered for getting around equalization, whereby the worker is guaranteed a certain established average wage. Under the new conditions this shortcoming is eliminated.

The transfer of the right to distribute earnings to the hands of the collective is a condition of the experiment whose significance is difficult to overestimate. It makes it possible to find and to work a powerful lever for unifying individual and public interests. For example, with "equalization" the specialist demands that he be paid 300 rubles per month although he has

actually earned only 170. Under the conditions of the individual form of organization and stimulation for labor this demand will be considered fair, even by the given workers' colleagues. The fact is that the difference of 130 rubles is anonymous: it is paid by the state or by approximately 130 million people employed in the national economy at 0.001 kopecks each. Hardly anybody would even think before giving this "sum" to someone who has not earned it, not to mention experiencing the loss or the injustice of sharing one's earnings with others. But in the contract collective consisting of 27 workers each person must donate 5 rubles. Of course people who have learned to count their pennies very well will not be able to understand the need to forget about this and give someone 130 rubles. And the state will not give the collective anything more than what it has earned because the payment is for the final result, the prepared product. As a result, each person, being concerned about his own well-being, about himself, also shows concern for the state. Possibly without even thinking about it. Such a clear and effective mechanism of unifying individual and collective interests is most fully manifested in the brigade. The goal of the experiment is to achieve the same thing at higher organizational levels.

A similar picture can be seen with respect to improvement of quality. Here is a fact. During 1984 the return of footwear by trade (the clearest reflection of the quality level, according to the estimates of specialists) to Sewing-Footwear Flow Line No 11 of the Ob Leather Footwear Association decreased by half. What mechanism was behind this dynamic? Although before the contract was introduced losses from returns were felt throughout the entire association, and thus they were not felt by each individual, they were "dissolved" in anonymity, under the conditions of the experiment these losses go to a particular flow line where each worker has a good sense of his own guilt from the amount of his earnings.

The conducting of the experiment is called upon to solve the most serious problems of the labor of specialists and managers. Before it was conducted, in conversations with leading workers of enterprises one frequently heard complaints about the fact that it was impossible to hire a good specialist because the existing provisions did not make it possible to establish appropriate pay for him. How can one establish a salary of 500 rubles for a highly qualified modeler? It is possible to establish the maximum on the salary scale, for example, \$200, but to do this it is necessary to create a special bureau or division which includes modelers who are not so qualified, who can receive lower salaries, as they say, "underlings." As a result everyone loses--the state, the enterprise and individual workers. Under the conditions of the experiment things are different: if one or two people can do the work of five, then they receive all five salaries. The collective final result are what is important and the plans and salary scales cease to be an obstacle, the "ceiling" on wages is eliminated--naturally, within the limits of the overall wage fund of the collective on the condition that it perform all of its functions.

Even the brigade form of organization and stimulation of labor offered considerable possibilities of establishing a unified wage fund without dividing it up into the so-called wage fund and the material incentive fund. It is not a matter or not only a matter of the worker having various amounts

of money depending on the source fund, but he takes it home all as one sum. It is more important that on the boundary between the two funds there is a division between two categories of personnel--workers and engineering and technical personnel. As a rule, the earnings of the former are taken out of both funds, and the latter--only from the material incentive fund. The piece-rate worker has the right to piece-rate bonuses, and engineering and technical personnel have no additional earnings and frequently they do not have bonuses either. The individual form of organization and stimulation of labor places separations among various categories of personnel. There are such formulas as "engineering and technical personnel do not have the right to take from the pot (that is, the wage fund) of the workers." Naturally, the prerequisites for unified motivation and solidarity of all categories of personnel are insignificant or they do not exist at all. These appear because of the introduction of the conditions of the collective contract.

The entire wage fund of workers of the contract subdivision is at the disposal of the collective. It has been determined normatively that the actual amount of that part of the wages which is called the bonus can exceed the maximum permitted for the corresponding category now engineering and technical personnel are given the right to "take from the pot of the workers," although these terms no longer apply: the (so-called) bonus of the engineering and technical personnel is conditioned by the fact that they work for the final result and not by how much they "take" from the worker. Even though when the experiment was first started the earnings were divided up largely in keeping with the old provisions, a change can already be seen. Notice the sharp increase in the earnings of foreman: footwear workers who previously did not exceed the level of 180 rubles. And the workers do not think that the additional payment has been taken from their "pot"--it has been fairly earned.

There are many examples of how the contract makes it possible to achieve unity of the interests of representatives of various categories of personnel. For example, before the experiment on the sovkhoses of the workers and engineering and technical personnel were awarded bonuses for different indicators: the former for the production of products and the latter for profit and profitability. In practice it frequently turned out that the volumes of crop growing products did not make it possible to award bonuses to workers although the engineering and technical personnel of this branch had every justification for obtaining bonuses--because of the efforts of animal husbandry workers. Today on the Morskoy and Priovskiy sovkhoses, which are participating in the experiment, for purposes of crop growing and animal husbandry the bonuses have been arranged on a single basis--for output. Permission for this was obtained from the higher agencies. The same thing pertains to physical bonuses (so far this applies only to workers).

When preparing the conditions for the experiment which were then included in the decree of the USSR State Committee for Labor and Social Problems and the Secretariat of the AUCCTU, special attention was devoted to changing the role and nature of the labor of engineering and technical personnel and employees in contract collectives. We know of the widespread attitude toward this category as though they were almost dependent. This opinion has been reinforced by the lower earnings of the representatives of these categories and the measures for reducing the number of some of the specialists and

managers in the form of orders from financial agencies concerning the reduction of administrative and management personnel. Frequently the phrase "overproduction of engineers" also does not give a favorable impression of the significance of their labor. Under the conditions of the contract it becomes possible to shake up and get rid of incorrect conclusions and ideas according to which the product is created by physical labor and mental labor is merely "overhead expenditures."

As research conducted by an intersivisional group of the Institute of Economics and Organization of Industrial Production of the Siberian Branch of the USSR Academy of Sciences shows, the mechanism of the collective contract has contributed to active inclusion of engineering and technical personnel in the solution of production problems by sections and shops. First of all there was a considerable expansion of the combination of occupations and positions. Thus the senior foreman of a section for new models of the Sorevnovaniye Production Sewing Association, A. M. Sokolova, combined the operations and functions of all employees--technologists, normsetter, production training instructor and workers. The combinations have become more diverse in content and in the amount of work, and in the intensiveness of the labor of engineering and technical personnel has increased significantly.

Special attention is drawn to the change in the motivation for combining occupations. Previously engineering and technical personnel performed operations or jobs for those who were absent only on order (when they were "forced," in the expression of the chief of the division for labor and wages of the Severyanka Production Sewing Association, Ye. P. Rudakova) or because they were "ashamed," but now there is such a motivation as the interest in the fulfillment of the production assignment. Engineering and technical personnel have come closer to the direct concerns of production. In places where they have managed to do this the collective has helped them. Thus before the experiment a technologist of Footwear Sewing Flow Line No 11 of the Ob Leather Footwear Association "descended to earth" from his office only to discover the slipshod work and write a remark addressed to the workers. During the first month of work under the new conditions she continued to follow the same "line" but when her bonus for the KTU was calculated as half the ordinary amount, her attitude changed. Today the technologist helps in working out technological processes, preventing slipshod work, in a word, fulfilling the assignment for the entire flow line and increasing the earnings of everyone, including her own. Everyone is paid according to the results of the labor of everyone and according to their contribution to the overall results.

Another motivation for combining occupations was established at the beginning of the experiment: engineering and technical personnel performed physical labor operations in order to justify in the eyes of the workers the increase of their earnings. It happened that a senior foreman as a piece-rate worker, without neglecting her functions, earned up to 300 rubles but only received her salary of 160 rubles and 40 rubles' bonus for high indicators of the work of the entire flow line. To the question of why she did not demand payment for all she had earned by piece-rate, the senior foreman answered that with her work on the machine she justified the increase of 40 rubles. Otherwise, in her words, this increase would not be recognized (the output of piece-rate workers increased and the engineering and technical personnel "take"

from them). Is there justification for fears like this? Yes, there were. Thus at a meeting of the board of the RSFSR State Committee for Labor and Social Problems one of the specialists proved the lack of substantiation for the high rates of increase in the earnings of engineering and technical personnel on the Morskoy Sovkhoz by the fact that they did not replace workers.

K. Marx emphasized that in order to produce a product it is not mandatory to lay hands on it.⁴ The present division of labor is such that the goods and services that are involved in production are becoming very removed from it. And it is gratifying that in the collectives themselves they are becoming convinced of the expediency of providing incentives for mental labor and increasing the return from it. First in one place and then in another it is necessary to recognize the ability of mental labor to produce something which is just as important as the actual material product. Thus the modeler of the Sewing Footwear Flow Line No 11, Ye. V. Kolomeychenko first had an assignment of performing a number of the simplest sewing operations whenever workers were absent. A certain amount of time passed and the collective made a decision: not to assign the modeler physical labor. If she can create an aesthetic, technological model of man's footwear with reduced labor-intensiveness, she deserves two or even three salaries. From below, at the machine, the machine tool or the conveyor they are thus gaining a correct, scientific understanding of the fundamentals of division of labor. For the difference between the normative and the reduced labor-intensiveness ends up as savings for the entire flow line.

When an interdivisional group circulated a questionnaire at the Elektrosignal Plant the collective of Stamping Shop No 32 came out in favor of "cultivating" the Bureau of Robotization. Of course, in the words "cultivating someone" one can clearly hear an evaluation; engineering and technical personnel from such a bureau do not create any products. But the readiness to include on the staff of the production shop a subdivision of workers in mental labor was dictated by a clear awareness of the fact that the workers in the bureau would create robots which would make it possible to reduce the labor-intensiveness of products and thus increase earnings. Those who were questioned understand well that mental labor creates a product and deserves the corresponding payment.

What has been said about engineering and technical personnel shows only one of the several hypotheses formulated before conducting the experiment and its confirmation. A total of several dozen hypotheses were expressed. Suffice it to note that the oblast coordinating council for problems of labor of the CPSU Obkom Council for Scientific and Technical Progress determined up to 70 subjects that which be developed by scientific research institutions and VUZes of Novosibirsk. Among these hypotheses one that is worthy of attention, for example, is the possible orientation of contract collectives toward increasing earnings at any price, particularly through increasing overtime (overtime did not count under conditions of the experiment). The hypothesis was confirmed: this is what is done, for example, at Severyanka. On the other hand, it was necessary to investigate the presumption that the creation of consolidated collectives and the formation and development of a collectivist awareness and behavior would be the primary result of the application of the conditions of

the experiment and, on the basis of this, qualitatively new and higher economic results would be obtained. And here the equipment shop of the Novosibirsk Agricultural Construction Combine, the mechanics section of the Sibselmash Association, footwear workers and others provide confirmation for the hypothesis.

Under the conditions of the experiment a central position is occupied by mandatory application of the principles of cost accounting in contract collectives--commensurability of expenditures and results, responsibility and incentives for their ratio. This turned out to be difficult for several reasons. First, the expenditures, except for the wages, sometimes cannot be measured because of the lack of instruments, gauges or meters. Second, the normative base is weak and many normatives of expenditures are either unknown or are not sufficiently substantiated. Third, one cannot clearly see the mechanism of material responsibility for failing to meet commitments and causing harm to the collective, especially on the part of divisions and services that are not participating in the experiment.

One cannot but note another reason--the social aspect. In all the developments an attempt is made to find methods and sources of penalizing the guilty party and applying sanctions. Here the developers frequently end up in a blind alley because they cannot, for example, punish the guilty worker of a material and technical supply division by "depriving" him of a bonus for he has already failed to earn one because of other indicators. One can understand the reaction of those whom we try to include in the mechanism of such cost-accounting relations whereby they can only lose. And the other side, the incentive side, falls completely into the background. On the questionnaire, for example, the deputy general director of the NPKOO Ob for Economics, A. M. Gorbunova, said directly that they had not even thought about the incentive aspect of cost accounting at the enterprise. Yet the contract collective, which freely disposes of the total wage fund, could encourage those subdivisions or those specialists who have contributed to increasing this fund. It would see that this kind of a cost accounting would find many proponents.

One cannot say that in general cost-accounting relations are not applied in the contract collective. For example, technical problems are gradually being solved in the NPKOO Ob. With the introduction of these relations they found a correct psychological approach. Thus the electric meters were placed initially on two similar machines. There was a competition between the workers on them. In payment one takes into account not only overexpenditures, but also savings. Both workers were motivated and the rest of the workers in the flow line were interested in their competition. The introduction of the electric meters at all of the work stations no longer causes any friction.

At individual enterprises, particularly in the instrument plant and the Severyanka Sewing Association they have established a mechanism for cost-accounting complaints. This makes it possible to improve economic relations and helps to improve the organization of production and labor. But there is still a great deal to do here.

A couple of words must be said about the selection of experimental objects. First of all the experiment included those subdivisions for the indicators of production activity were low. For example, Sewing-Footwear Flow Line No 11 of the Ob Association for the preceding period has fulfilled the plan for production as follows: 1981--19.9 percent, 1982--98.3 percent and 1983--89.5 percent. The question of disbanding it altogether had been raised repeatedly.

At the same time leading sections and shops were included in the experiment. Understandably, in the backward section there were always reserves on the surface. If one were to concentrate the experiment on these doubts would always remain. Hence it is not surprising that also participating in the experiment were the shops for producing and filling glass ampules of the Novosibirsk Chemical and Pharmaceutical Plant which had managed to seriously exhaust the reserves for increasing the effectiveness of production because of the application of the Shchekino method and the experience of the Dinamo Plant for three five-year plans. A great economic effect was achieved, but the possibilities of further improvement through organizational factors were narrowed. For example, even before the experiment there were no positions for foremen in the shops. Nonetheless the experiment revealed new potentials for growth of economic indicators. Many sections of the Elektrosignal Plant were among the right flank before the experiment. It seemed that there no reserves left for growth with the given technical equipment, technology and list of products. Nonetheless during 1984 labor productivity increased here. This was because of the conditions of the experiment, which thus confirms that the collective contract is universally applicable.

It is a multibranch experiment and both heavy and light industry are represented in it as are sections from various types of production--mass, large-series, small-series and unit production. The enterprises and subdivisions are headed by various people--those who actively support it and others who frankly say that the collective contract does not do very much. It is also possible to evaluate the effectiveness of the application of the collective contract in various ways. In some subdivisions it is expedient to increase the volumes of production and in others--to reduce the number of personnel, and in still others--to maneuver the number of personnel freely (for example, in the bread production of the Voskhod Association where the volumes of production vary significantly among the various seasons, months and days), in others--to improve quality, in others--to stimulate savings on material resources, and finally in others--to improve discipline and order and create consolidated collectives. The results of the work of the section for new models of the study of Sorevnovaniye Sewing Association can generally not be evaluated according to the number of items manufactured by this collective, but by how quickly the new model is assimilated by the flow lines for mass production.

Of course, when selecting objects for conducting the experiment the desires of the collectives themselves and the management were also taken into account. For example, including the Voskhod Bread-Baking Association was the suggestion of the USSR minister of the food industry. And the justification can be understood: the branches experiencing serious difficulties and providing for its personnel. It should be added that when determining the composition of participants in the experiment it became quite clear how sincerely individual

economic managers desired to rectify things and solve problems about which they could not stop complaining. The collective contract is a means of solving these problems. Not everyone decided even to test its application in practice or to join in on the experiment.

What were the results? Did the contract produce the effect which was expected from it?

The following figures give a clear idea: the increase in labor productivity in the contract sections during 1984 amounted to an average of 15 percent, and at enterprises in which they were not included--4 percent. Loads of working time were cut in half and labor turnover was reduced by approximately the same amount. The collectives that were created had a high degree of interest in the final results of their labor.

Here is an example. The equipment shop of the agricultural construction combine had mainly low indicators of both a technical-economic and social nature. It was time to disband it. In the words of the chief of the combine, A. F. Senin, they approached the experiment with caution. But the results removed all doubts. The shop was literally transformed. Overtime disappeared and days off were no longer used as working days. When earnings are calculated the evaluations are made actually according to the labor, according to the contribution of the collective results. Previously, for example, they could not keep any fitter-repairman for very long: they were included among auxiliary workers and their earnings were low. Newcomers in this position sometimes did not even know how to hold a screwdriver. During the course of the experiment the handyman began to receive more than anyone. The justification was that the equipment began to work correctly and hence the overall earnings increased as well.

In the summer of 1984 about 100 skilled workers were released from the combine and actually nobody left at his own request from the equipment shop. On the contrary, many expressed a desire to transfer to it from other subdivisions. These facts show that a true collective has been established.

Among the positive results of the experiment one should include the fact that one could clearly see the shortcomings in the organization of production, labor and management, and not only at the level of the enterprise, but also outside it. For example, the chemical and pharmaceutical plant was given excessively high plans for 1985. The collectives of the shops, taking advantage of the fact that they included economists and other specialists who were interested in a high final result, carefully calculated their capabilities and did not agree with the assignment. When fulfilling the agreement of the contract the plant's director was forced to exert great effort in order to coordinate the planned assignment and the resources.

It is noteworthy that in contract collectives the custom of passively "pointing out shortcomings" disappeared. Another custom is developed: to rectify them through one's own efforts. Section No 6 which is constructing the electric depot of the Yeltsovskoye subway could have stopped because of delays in geophysical work. But the construction workers decided not to wait around; they found their own specialists who successfully did the work of the

Materials were not delivered to a galvanizing section on time and the collective decided to move the shift forward and work at night. The chemical and pharmaceutical plant did not receive enough packaging so that the plan could be fulfilled only by working on Saturday. As distinct from the past, it is not necessary to convince the workers to go to work on Saturday; they decide to do this without any persuasion. The equipment shop of the NSSK regularly fails to receive the necessary amount of metal and does not fulfill volume indicators (volume of work in it during 1984 increased by more than 16 percent). Here they are suggesting that the design of the power trenches be changed so that, with a considerable improvement in technical and economic parameters, the consumption of metal can be reduced by one-fourth. Naturally, the collectives should be paid for this savings.

The mentioned examples far from exhaust all of the positive results of the experiment, which are of not only practical, but also scientific and technological interest. The scientific research institutions which have been responsible for methodological leadership of the experiment will have to make a careful analysis of its results. Such an analysis is already being conducted, including at our institute. Its tasks also include the discovery of shortcomings.

What are the main shortcomings? The first of them, it seems to us, is that the initial conditions of the experiment, which make it possible to achieve an economic effect, are clearly being underutilized. They are such that they give the wings to fly and adhere to a steady course in the direction of intensification and collectivism, looking over all the difficulties on the path. Unfortunately, in the majority of cases the participants in the experiment continue as before to crawl, making their way through the labyrinth of outdated, obsolete provisions which no longer have an effect. The experiment eliminates any "ceiling" in wages but they say to you: What about the charts of salaries and the distribution charts? There are none. They were in effect at one time when calculating the normative of wages from unit of output (work), but subsequently one must be guided by the worker's individual contribution. No, they are not guided by this.

The old provisions are carefully transferred to the new conditions, as a result of which they suffocate them. The mechanism supplied for the formation and distribution of earnings are especially conservative. In essence they remain the shortcomings of individual piece-rate and time-rate work, against which the collective contract is directed. The experiment was intended to lead to a move away from these forms, but it has been limited perhaps to hints of change and has in fact remained in the background.

The normative approach to planning and evaluations of the results of activity was followed more weakly than expected. Many participants have for various reasons been unable to cope with the long-term stable normatives for payment from unit output. The understanding of cost accounting have rarely gone beyond the framework of planning of wages. The agreements concluded by the subdivisions and the administration are far from perfect. They are often formulated too generally, for example, stipulating the obligation to observe labor discipline or the obligation to provide the

subdivision with everything necessary for normal operation, without concretizing measures to be taken in the event of failure to do this or overfulfillment of the tasks. The agreements include indicators of average wages and the average number of personnel for the planned period, which, according to the conditions of the experiment, is quite superfluous and shows only a lack of understanding of these conditions.

The results of the experiment are summed up regularly: each month, for the quarter, for the semester and for the year. Let us take a look at the explanations of why the collective has not fulfilled the plan or has not overfulfilled it by very much: not enough metal was delivered, deliveries of packaging were interrupted, there are no mechanisms or construction elements.... Such explanations seem objectively substantiated at first glance. But they are also appropriate for those subdivisions which are not participating in the experiment. Under the conditions of the contract it is important to find an answer to the question: but what does the experiment require and does it contribute to solving the problem in another way and achieving a positive effect? For example, how did the rural construction workers find a method of finding against the shortages in the metal deliveries and begin to require less of it. It is not without regret that one must state that the real and potential capabilities of the collective contract are not being put to work. Therefore the successes that have been mentioned, though they may be appreciable, cannot satisfy us. We are still waiting for the explosive effect.

Let us use a comparison. When organizing the experiment all the initiators wanted to melt a chunk of ice which was lying like a heavy burden on initiative and creativity, motivating them to reveal the labor return. They approached the chunk of ice with a sharply burning torch of the experiment but over it grew such a thick layer of conservatism that only individual tongues of flame could reach the ice. In these places blossomed bright bouquets of socioeconomic effect. We show them everywhere, repeating for ourselves, however, that we expected much more. Therefore when speaking about the future of the experiment it is necessary to suggest that under the 12th Five-Year Plan we clear off what is grown over it and utilize the full capacities of the torch. And this must be done in the sections, the shops and enterprises as a whole, and outside them as well. It is necessary to have a sharp leap forward in the level of collectivism in labor, the liberation of labor and social initiative, and multifold growth of the productivity of public labor.

FOOTNOTES

1. See Gorbachev, M. S., "Korennoy vopros ekonomicheskoy politiki partii" [The Fundamental Issue of the Party Economic Policy], Moscow, Politizdat, 1985, p 4.
2. See also Povileyko, R. P. and Khlevetskiy, V. V., "Adres opyta--zavod 'Elektrosignal'", Novosibirsk, Zap.-Sib. Kn Izd-vo, 1985.
3. Decree of the USSR State Committee of Labor and Social Problems and the Secretariat of the AUCCTU of 25 November 1983 No 270-24-39.

4. See archives of Marx and Engels, Moscow, Politizdat, 1983, Vol II (VII), pp 129-131.

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CSO: 1820/60

LONG EXPERIENCE WITH COLLECTIVE CONTRACT RELATED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 1, Jan 86 pp 106-112

[Article by F. F. Shevelev, director of the Elektrosignal Plant (Novosibirsk): "Fourteen Years of the Collective Contract Behind Us"]

[Text] The collective contract, which includes engineering and technical personnel in the brigades, has been alive and in effect at our plant for more than 14 years. In 1984 it became the basis of the "Novosibirsk Experiment." But whether or not the experiment had been conducted in our city this form of organization and payment for labor would have continued to be in effect here because it has turned out to be extremely useful for production and has helped to solve a number of serious problems.

We began to introduce the collective contract in the stamping shop. Why precisely in this shop? First of all, because it was operating poorly and at that time it was one of the most important shops in the production chain. The Izumrud television sets which our plant produces have an immense list of stamped items: tens of thousands of stamped items: tens of thousands of pieces. The piece-rate payment led to dividing the work into advantageous and disadvantageous tasks. Because of the fact that the manufacture of disadvantageous parts was constantly being put off, there were interruptions in the assembly work.

Second, in the stamping shop there was a large number of time-rate workers for whose work it is difficult to establish norms. These were the people who installed the stamps, the repair workers and the instrument service. It turned out that the shop had everything--people, technical equipment--but the return was poor. Third, each year it became more and more complicated to solve the personnel problems related to selecting engineering and technical personnel and employees for the shops, especially foremen. Therefore this idea arose: what would happen if we created in the section a contract collective and included in it not only basic and auxiliary workers, but also all specialists who provide for normal functioning of the production chain? The idea smacked of the Shchekino Experiment for increasing labor productivity as a result of expanding the zones for servicing equipment, combining occupations and so forth. At the beginning of the 1970's the influence of the

Shchekino Experiment on production workers was extremely significant. Unfortunately, people began to forget about it later.

Using the idea of the Shchekino workers as a basis, we took our own path. The first and major principle by which we were guided on creating the contract collective in the section was all-around inclusion of the production with an evaluation of the work according to the final result. The comprehensive all-around brigade of the stamping section, which is led by the senior foreman Shutov, included the basic piece-rate and time-rate workers, auxiliary time-rate workers and engineering and technical personnel--the senior foreman (the brigade leader) as well as shift foremen and technologists. This section manufactured about one-third of the entire volume of stamped items.

Previously the workers were distributed strictly according to their professions: stampers, drillers, milling machine operators and so forth. With the organization of the contract collective they had a motivation to learn to do everything and to replace one another when necessary. In a large collective there are great possibilities of interchanging. Everyone is prepared to perform any job because the overall result is important to all of them. With the work organized according to a unified order the work was not divided into advantageous and disadvantageous. All this led to a situation where the external management of the brigade became appreciably simpler. Detailed regulation of labor process turned out to be unnecessary.

Previously about 30 percent of the problems in the work of the section were the fault of the shop technologists. With the changeover to the collective contract there was not a single case of a breakdown for these reasons. The correspondence of the interests of the technologists and the workers led to a reduction of the labor-intensiveness as a result of improving the technological process through the efforts of engineering and technical personnel and workers of the brigade. Sometimes the workers asked the technologist: "Think some more about this problem and perhaps the work can be performed more efficiently?" The engineer responds to such a request immediately.

The pile of business documents has dried up and become unnecessary. The equipment is turned over from one shift to another without readjustment or halting. From a piece of metal a part is stamped, straightened, cut, drilled and so forth, that is, everything is done to make it completely ready. And it does not make any difference when its processing began--on the first or second shift. It seems to me that the fact that we have stopped "stumbling" over the shift change and that the machine tools are not stopped for readjustment at the end of each shift is an essential advantage of the all-around contract.

During the first 10 years of work in the new way labor productivity in the section increased 2.5-fold, the production volume--four-fold, and wages increased by 80 percent. Labor turnover decreased from 42 to 8 percent.

Wages are established according to the amount of time worked and the qualifications. The coefficient of labor participation (KTU) is applied to the variable part of the earnings. The KTU can be increased by 30 percent for increasing output, for high quality of parts or for the acquisition of the

right to work with a personal label as well as for tutorship and for young workers. Or it can be reduced by 50 percent for winter technological and labor discipline or slipshod work.

In the contract collectives that include engineering and technical personnel in the brigade the selection of foremen is simplified. Here the wages of foremen are 15-20 percent higher as a result of the increase in the variable part of the earnings which are distributed according to the KFO. We had not managed to completely solve the problem of paying the foreman even if the coefficient of labor participation is higher for the foreman than for the worker, his duties are much more difficult. In one place they tell him to do things and then in another place they "beat him down" and he is paid as much as a worker does.

When the indicators of the experimental section improved and the productivity and wages increased, the neighboring sections themselves said: "Change us over to the system of organization and payment for labor as well." Thus gradually all the sections of the shop began to work under the collective contract.

By the time they became interested in our methods of collective organization of labor and the initial state committee for labor and social problems and our local party organizations we already had 27 sections operating under the new conditions. Was there some degree of risk? Undoubtedly, as in any new thing. But we moved gradually and cautiously, beginning with the sections in which we could not achieve an increase in the effectiveness of production by using the old methods.

Here, for example, is the galvanizing plant. The production is very difficult and the equipment is imperfect. For more than 4 years the sections of this shop have been working under the conditions of the collective contract and since that time production has ceased to be sluggish. I do not have to worry about it all the time. When a director can "forget" about a shop it is good and bad--this means that there are no problems that require the intervention of the top manager.

Or the automatic revolver shop. The picture here was gloomy. Great problems with the daily assignments and frequent interruptions. Now we are experiencing no difficulties with the automatic revolver works. The collective contract has made it possible to solve all the problems.

But what advantages do we experience from the introduction of collective organization of labor organization? Modern production everywhere is finding that the number of service personnel is increasing. With a higher technical level of equipment this is the way it should be. But for us the picture is different.

When the first stamping section changed over to the collective contract the auxiliary workers comprised 40 percent of the collective. Now they comprised only 24 percent. Although the production volume in this section increased sixfold the number of workers who service equipment did not increase by a single person. During the work process the collective became convinced that a certain number of the service personnel did not have to be retained.

people occupy the main work positions and produce the products, and the duties of the auxiliary workers can be shared by all members of the brigade.

Further, we must keep in mind that only the organization of a large contract collective makes it possible to include all engineers and foremen. But this does not mean that the entire innovation amounts to the fact that the engineer or employee helps to fulfill the plan. When time is released they actually participate in the production of products. But the main thing is that their interest in improving the engineering support for the contract has increased. The technologist now displays a great deal of interest in the mechanization of production, improvement of the organization of labor and the assimilation of new technological processes.

At first we changed the methods of planning the work of the brigades. The changes were introduced into the organization of labor and the distribution of the earnings. Even this turned out to be enough to considerably improve the results of the labor. Now we are faced with the problem of planning cost accounting indicators for the contract collectives. We are now trying to introduce this planning. But this is the most complicated work. For the indicators must be developed and then monitored. How many more people should be included in this orbit?

I wish to note that the changeover to the collective contract produces an especially great effect during the first years. Labor productivity and the contract collectives of the plant increased by an average of 20-30 percent a year. But it was wrong to think that this rate of increase would be permanent. It is impossible to achieve stable high growth rates just through improving labor organization. When organizational and social research turn out to be basically exhausted it is necessary to search for new ways of increasing labor productivity, mainly through accelerating scientific and technical progress. But even when the indicators in the brigade are basically stabilized the annual rate of increase of labor productivity here is 2-3 percent higher than in other sections and collectives. This gives our plant the opportunity to release dozens of people and to increase the production volume without increasing the number of workers.

The next stage in the experiment is the changeover of the entire shop to the collective contract. We think that it is wrong to change the shop over to the new conditions for organization and payment for labor without introducing the contract in the sections, and therefore we have included in the experiment first of all those shops where all the sections are working under the new conditions. We thought for a long time about how to motivate the shop services--production-dispatch, mechanics and others--to improve the work of production sections. With the help of the Novosibirsk Branch of the Scientific Research Institute of Labor we managed to create provisions concerning payment for engineering and technical personnel of contract shops, which is directed toward not only fulfilling the plan for the shops, but also for making sure that there are no backward sections.

We are now counting up the results of the work of the shops under the new and under the old methods. People are being convinced through their own experience that it is better to work by the new system. If we master the

shop contract it will be possible to look more broadly and think about the contract collective on the scale of the plant.

When changing over to the new conditions for the organization and payment for labor the most complicated thing turned out to be the establishment of contractual relations between the administration and the contract collective. In my opinion this is one of the methodologically least well-developed problems. Science should accelerate the issuance of recommendations. What should the actual form of the contract agreement be and what should it include? How should the contract agreement be different from the ordinary collective agreement?

Special emphasis is placed on the assimilation of new technical equipment. Here it is necessary to separate the assimilation of new items from the introduction of new technologies, mechanization and automation of production. The assimilation of new items is for the shop and section the fulfillment of the plan according to the products list. Whether one wants to or not it is necessary to produce new products and achieve fulfillment of the plan in terms of the final result. It is another thing when the plan for new products sometimes requires increasing the number of personnel.

Since the wage normative is established for us a year in advance it becomes possible not to change the time norm immediately after the introduction of new technical equipment and technology. Before the end of the year the collective has additional savings on wages which remain at their disposal as incentive for the introduction of new technical equipment. Therefore the contract collectives are proceeding in the direction of introducing new technical equipment at the beginning of the year or in the extreme case--in the first half of the year. In the second half of the year this is no longer advantageous for them and this means that incentives are necessary for the brigade so that there is not even a month's delay in the assimilation of innovations.

We have noticed that the technical services are devoting less attention to the contract collectives than is necessary. There is a simple explanation for this. There are more bottlenecks and "hot spots" in production which are first to require the intervention of the technical services. The contract collectives, if they are provided with materials and batching items, will pull them out and will not let them down. But no one has yet calculated whether the introduction of progressive equipment is more advantageous or how much more advantageous in the contract collective or in the ordinary production sections. This is also a question which both we and the scientists have to work on.

We have also encountered difficulties in solving the problem of combining occupations and interreplaceability in sections with difficult working conditions, for instance, in the galvanizing section. Most of the workers here go on pension as early as they can: men--at 50 years of age and women--at 45. There are workers to whom the pension benefits do not apply--the same storehouse workers. Of course we do not give the storehouse workers work which involves harmful conditions. But then the possibility of interreplaceability narrows. It seems to me that we must consider the

question of pensions for all members of the contract collectives in shops with difficult working conditions.

These and other problems related to increasing the effectiveness of the work of contract collectives must be solved during the process of the experiment.

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CSO: 1820/60

FOOTWEAR FLOW LINE ON COLLECTIVE CONTRACT

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 1, Jan 86 pp 112-122

[Article by S.M. Zverev, candidate of economic sciences, general director of the Ob Leather Footwear Production Association (Novosibirsk) (S. M. Zverev is now the director of the branch of the Moscow Technological Institute of Light Industry): "The First Footwear Flow Line in the Country--On the Collective Contract"]

[Text] Two sewing flow lines (10th and 11th) and a shop for sewing women's fashion footwear are working under the conditions of the experiment in our association. The flow lines produce men's chrome leather fashion footwear (boots) shoes, and sandals with soles made of rubber and polyurethane). The plan output for 1984 was 180,000 pair on the 11th Flow Line and 227,000 pair on the 10th Flow Line. Working under the conditions of the customary, traditional organization of labor and payment for labor, the 11th Flow Line has for several years regularly failed to fulfill the planned assignments and only a principally new attitude toward labor could rectify the situation. This is what forced us to change over to the introduction of the collective contract.

This is the third year we have been working under the new conditions. Let us note certain "hot spots" which gave us some trouble at one time. I think that this will be useful to people who are introducing the collective contract at an enterprise.

Preparation. It was lengthy and careful and included both the organizational and the engineering aspects.

Special organizational and technical measures were developed.

The possibility of conducting the experiment was analyzed.

In conjunction with party and public organizations we conducted explanatory and propaganda work: we discussed the goals and tasks of the experiment with those who would have to participate in it. The essence of the collective contract, its advantages and the peculiarities of working under the new conditions were explained to each worker. When conducting the experiment

there is regular monitoring on the part of the local institution and the party, trade union and higher organizations.

On the basis of the course training schedule we organized the training of foremen and engineering and technical personnel and the methods of production management under the conditions of the experiment. The technical division and the head mechanic's division worked on technical preparation of production. A technical and economic analysis was conducted of the work of the experimental collective during 1982 and 1983 in order to reveal the omissions and also the reserves. The basic technical and economic indicators were determined for the work of the contract collective during the month, the quarter, the year and the entire period of the experiment (1984-1985).

The leading divisions of the association (scientific organization of labor and wages, planning-economic, production-dispatch) took a creative approach to this innovation. They developed and approved provisions directed at providing for rhythmic and stable work of the collective: concerning the policy and the conditions for conducting the experiment; concerning the council of the labor collective of the experimental flow line; concerning the contract collective; concerning the wages of the contract collectives; concerning bonuses; concerning cost accounting; additions and changes in the official instructions for engineering and technical personnel, foremen and masons; the mechanism for norm setting and distribution of wages, and so forth.

Today one can note that it is precisely the responsible attitude that made it possible to carry out the basic measures for engineering support before 1 January 1984 although, as was previously planned, some of the principal issues were not resolved until during the course of the work of the contract collective (for example, in September 1984 a conveyor was replaced, the reserve equipment for the flow line was provided during the fourth quarter of 1984, and so forth).

Contractual relations of the contract collective. First of all these include the agreement with the administration. It determines the duties of the collective for producing the planned volume of products of the appropriate quality and within the established time periods, and increasing labor productivity. The peculiarity of the agreement consists in that, on the basis of the production plan of the enterprise, the following is established for the collective of the experimental flow line.

annual and monthly plans for the volume of production (in pairs of footwear and rubles) developed on the basis of branch normatives of the assignment for increasing labor productivity, indicators for product quality, and the output of footwear with the State Emblem of Quality and the index "N" (innovation);

the wage fund, including the fund for earnings and the money for bonuses of all workers of the contract collective of workers and engineering and technical personnel, that is, part of the material incentive fund;

the expenditure of raw materials, auxiliary materials, electric energy, and other material resources per unit of output if it depends directly on the activity of the contract collective and is supported by the proper accounting.

The contract collective can conclude (and is concluding) agreements with engineers and fashion designers if it is necessary to unclog a "bottleneck" in production. Contractual relations of collectives both with the administration and with individual members of the collective make it possible to successfully solve all kinds of conflicts without economic and moral outlays and thus increase the ability of the contract subdivisions to operate.

But practice shows the need to devote the proper attention to the legal aspect of the issues in the contract. Thus in Flow Line No 10 the collective did not want to have workers of pension age in the leading operations. Or the foreman of the section, coming back from a statutory leave after an absence of a year and a half, naturally, wanted to occupy her legitimate position, but the collective, knowing that she was a specialist whose qualifications were not high, objected to this. In either case the conflict situations were resolved "in a good way" by the administration. But the collective should have had the decisive word here. There is no mechanism for compensating for the losses of a collective that has worked on a contract even if it was not to blame for these losses. In particular, defective work which is not the fault of the collective cannot be compensated for under the existing provisions.

Agencies of self-management. In a contract collective, on the basis of the labor-intensiveness (according to branch normatives) of the production program, 89 people are working. Among these 70 are piece-rate workers, 11 are time-rate workers, there are four foremen, a technologist and a fashion designer. The flow line consists of two or three brigades--sewing and stitching.

The peculiarity of the contract lies in the fact that in the sewing flow lines the brigade councils have been retained and the chairmen of the brigade councils are now included in the council of the contract collective. In the 11th Flow Line it is headed by Senior Foreman A. N. Gunina, who enjoys a great deal of authority in the collective. The fact that the collective is headed by its informal leader makes it possible to avoid many situations of conflict.

Do not hurry! In our opinion, the problems of many brigades come from haste in their creation, when there is no time to think about or check on individual provisions. Therefore we were in no hurry to sharply expand the scale of the experiment until all of its sore spots and stumbling blocks had been determined. The plant management literally played nursemaid for the first experimental flow line. This does not mean the creation of special conditions--reduction of the labor-intensiveness of the items or an increase in pay rates. No, it operates under the same conditions as the other flow lines do. But being oriented toward an ever broader dissemination of the brigade contract at the enterprise, we are abreast of the affairs of the collective, its problems and the sore spots in its work. We analyze everything attentively and we search together for a way out of the situations that arise.

Only sincere confidence and the future of the new organizational form and the positive results of the work of the 11th flow line could convince us of the possibility of changing Flow Line No 10 over to the conditions of the experiment. Before this it served as a "control" group for Flow Line No 11

(an analogue for comparison).

Having worked the fourth quarter of 1984 under the conditions of the experiment the collective of the 10th Flow Line fulfilled the plan with respect to all indicators. Moreover the output of the final product increased by 14.7 percent, labor productivity by 31.2 percent, and the number of workers decreased by 15 while the average wages increased by 18.7 percent. Losses of working time decreased by 33 percent, labor turnover decreased by 22.6 percent, and returns from trade decreased to one-tenth of what they previously were (from 0.9 percent to 0.09 percent). This is what it means to make payment for each operation depending on the final result and to apply the principles of cost accounting.

This was another confirmation of Lenin's words to the effect that advancement is possible not on the basis of enthusiasm, but with the help of enthusiasm, with personal interest and personal motivation. After working for a year under the collective contract each worker of the 11th Flow Line understood that he could achieve internal satisfaction with his work, utilize his forces and capabilities efficiently and also have good earnings, which is of no small importance.

The social effect. With the introduction of the collective contract the association receives a double effect--production-economic and moral-psychological: the activity of the workers, initiative and collectivism increase. Here is an important factor--a new organization of labor whereby the final product is produced taking the collective opinion into account. The abilities to cooperate are manifested more clearly and the number of psychological disturbances, conflicts and moral-pedagogical problems decrease (the participants in the collective contract are no longer indifferent to their work). There was a sharp reduction of the number of disorganizing factors: discharges, idle time, overtime, and so forth. And in the management of the flow line the responsibility of the senior foreman was reinforced by material and moral responsibility of all members of the collective contract. In our opinion the main thing that is inherent in the collective contract is the managerial interaction which prevents various situations of conflict, and the increased "social fitness" of the collective.

A decision has now been made to change Shop No 2 and individual flow lines over to the conditions of the experiment, which correspond to the interests both of the workers in the flow lines and of the association as a whole. This production initiative is viable since it is economically expedient and envisions material advantage for those who work well. And the positive example of the 10th and 11th flow lines is in evidence.

Of course it would be naive to think that all members of the collective have become conscientious in all their affairs and deeds, fair, objective, active and filled with initiative. There are still those who are not interested in their work and who look at everything from the outside. But still the atmosphere in the brigade changes people--they become more responsible, more disciplined, friendlier, more filled with initiative and they have a more solicitous attitude toward one another. The feeling of collectivism is growing. Thus for the first time in the entire history of the association

several habitual drunks and absentees were fired on the initiative of the collective. Before the beginning of the experiment the enterprise sociologist was very concerned about the creation of the sociopsychological climate. For example, he found out who all the informal leaders were and later included them in the brigade council.

The collective proved its solidarity indeed. In order to organize the planning work of the flow line, in the autumn of 1984 they needed 25 pair of polyurethane soles and 19 pair of heels made of plastic in the second quarter. But the material and technical supply agencies did not deliver them on time. The realization of the very principle of having contracts was threatened. In order to avoid a stoppage of the work of the contract collective and the redistribution of its members among other flow lines, we were forced to change the assortment. We are convinced that only because of the new form of labor organization was it possible in an incredibly short period of time to master the output of new models and avoid large material losses. At the same time, of course, such tests for "endurance" are extremely undesirable.

Engineering and technical personnel and fashion designers: their position in the contract collective. The idea of including specialists--foremen, technologists and fashion designers--in the labor brigade produced positive results. One must say that in the flow line brigade the work of the specialists has become comprehensive in nature. This was manifested first of all when streamlining the work of the equipment and improving the fashions with a simultaneous reduction of labor-intensiveness, in the introduction of progressive technology, and so forth. Everyone thought together about how to improve the fashions of footwear and their quality, and how to utilize equipment more efficiently.

It was precisely the new form of labor organization--the collective contract--that made it possible for the fashion designers to work in a new way. The very content of the work of the fashion designer changed: now he proceeds from general ideas to the concrete goals of production. For frequently it is not a matter of the inexperience or stupidity of the engineer or fashion designers, which is how we sometimes explain the slow reduction of labor- and material-intensiveness of the fashions, but their separation from the labor collective and from production. Today both the technologist and the fashion designer, actually sensing the existing assistance from the collective, are more efficient in creating designs and the technological process for them. Here is a manifestation of both personal interest and a high sense of duty.

On the whole it is already clear that the efficiency factor of the technologist and the fashion designer is higher in the contract collective. The prestige of engineering labor increases and the engineer's creative potential is utilized more effectively. We have established, for example, a "bank of promising ideas" which did not exist before.

Additionally, collective management of production and the possibility of evaluating the work of engineering and technical personnel not from above but by the contract council through the coefficient of labor participation is an incentive to search constantly for better ways of organizing labor. Having

attentively analyzed the work, we found it possible to increase the effectiveness of the labor of the technologist and the fashion designer. The foremen can be better prepared for the output of new fashions, they conduct individual work better with performers of individual operations in the flow line, and they devote more attention to ideological and educational work in the collective and the creation of good sociopsychological conditions.

The organization of work and the contract collective. Today each member of the collective contract does not have to be concerned about the rates being reduced because a stable wage normative is established for 2 years. The administration need not be concerned, as is usually the case, about the redistribution of the wage fund because when the normative is established a planned reduction of labor-intensiveness is envisioned. Working time is utilized more efficiently. If somebody has been unable to come to work they try to work together to replace him. It also happens that the foreman and technologist take over for workers, although we do not encourage this. The engineer should be primarily a production organizer.

It is gratifying that the foremen and specialists have begun to solve the problems that arise more efficiently. Nobody is forcing them to do this: they are simply interested in the results of the labor of the collective. Handyman and repair workers try to do preventive inspection of machines during their dinner break or after work in order not to stop the conveyor. Instead of two cleaning ladies the flow line is handled by one: the duties of the other were taken over by the brigade. Piece-rate workers combine two or three operations and do not divide them into "advantageous" and "disadvantageous."

The evaluation of individual labor according to the coefficient of labor participation and the search for ways of economizing on live labor in order to increase the efficiency of work are of special moral and material significance for all members of the collective contract. A mechanism has been worked out for forming and distributing wages. In the fourth quarter a system was introduced for monthly calculation of the variable part of the wages and the wages of each worker with the help of a computer.

Even the first month of operating under the conditions of the collective contract showed that many questions had arisen, both in the organization of labor and the payment for it, which we could not solve immediately. The Roskhozobuvprom, the RSFSR Ministry of Light Industry and also the branch Central Scientific Research Institute of Leather Production (TsNIIKP) should take more interest in the experiment. So far they are observing the way the experiment is being conducted in an individual flow line in the footwear industry of the country as though from the outside, although there is undoubtedly a need for the developments concerning the collective contract of the flow line, shop and so forth. A consistent increase in labor productivity should be accompanied by a proportional increase in wages and also the introduction of cost accounting collective contracts with decentralized funds--both incentive funds and funds for development.

Prospects of the collective contract. The reserves that lie on the surface are limited and it is necessary to search for factors that are constantly in effect and to reveal the deep "layers."

As practice shows, modernization of equipment does not provide for high stable rates of increase in labor productivity over the long period since the productive capabilities of equipment in the footwear industry are practically not increasing. Does this not lead to the situation which has arisen at many enterprises with the introduction of brigade forms of labor organization whereby immediately after the creation of brigades they achieved a considerable increase in productivity and, having exhausted the internal reserves, the rates of this increase dropped sharply? Yes, it can lead to this if we do not determine the prospects for the development of this form of collective labor right now.

An important direction for the development of the collective contract is further improvement of it on the basis of cost accounting. We are now forming a base for the introduction of cost accounting in contract collectives as well as in incentive funds.

Today the schedule for the dissemination of the experiment in applying the selective contract within the association envisions this sequence: flow line-shop-production (plant, branch)--head production--entire production association, which can be done by 1987. This will make it possible for us to overcome the consequences of the outflow of personnel (according to predictions, no less than 600 people, which amounts to about 15 percent of the workers). The changeovers of the entire association to the collective contract (proposals have been submitted to the USSR State Committee for Labor and Social Problems and the USSR Ministry of Light Industry) will help to carry out the tasks of the 12th Five-Year Plan and to increase the material incentives for engineering labor. Now the wages of foremen under the conditions of the collective contract are 254 rubles, technologists--217 rubles, and fashion designers--222 rubles. The output-capital ratio will increase. For Flow Line No 11 the output-capital ratio per 1 ruble of fixed capital increased by 13.7 percent and the output of products from 1 square meter--by 14.3 percent. Now all the economic indicators of flow line No 11 are usually better than those of the association as a whole. The output of footwear in physical terms (pairs) in the association increased by 1.5 percent as compared to last year and in value terms--by 0.3 percent, and yet the output-capital ratio decreased by 4 percent, while for Flow Line No 11 the output of footwear increased by more than 14 percent in wholesale prices.

Just the changeover of the entire association to the contract form of organization and payment for labor will lead to a restructuring of the relations among workers employed in the production of material goods on the basis of socialist thriftiness and enterprisingness. A social goal is pursued: the development in the workers of a sense of being the master of production. And this is quite realistic since under the conditions of footwear production each flow line is an economically independent subdivision within the framework of intrabusiness accounting and therefore each flow line can have its own unified cost-accounting book.

Even now, for example, up to 70 percent of the savings on electric energy go into the incentive funds of the subdivision. The first meters have been installed on a number of machines. This makes it possible to analyze the

workers' attitude toward economizing on resources and toward the funds that are accounted for and monitored. Provisions have also been developed for incentives to economize on spare parts. Next comes the introduction of accounting for the expenditure and motivation for economizing on resources which were previously expended without any limitations--thread, glues and so forth. Orders have been submitted for the production of various kinds of gauges, counters and meters; and warehousing will be arranged so as to provide for strict accounting and control.

It will be necessary to improve certain provisions of the experiment as well. In particular, it would be expedient to achieve an orientation in engineering and technical personnel toward the utilization of engineering and management resources. Initially engineering and technical personnel were interested primarily in replacing workers who were absent. This is explained partially by the lack of preparedness of engineering and technical personnel for such a changeover. On the other hand, the objective prerequisites for the new attitude toward labor were also inadequate. And only when they were developing items for 1985 were the engineering and technical personnel and fashion designers able to realize their engineering potential. This releases the functional services from excess work. After the engineering and technical personnel were included in the contract collectives the workers themselves became aware of the need to provide incentives for the engineers to perform their own immediate functions and to increase their influence on the overall final result of the work.

I must say that participation in the experiment means more than just increasing the intensiveness of labor and increasing earnings. It also means additional work on reporting, the discussion of the results at various levels of management, exchange of experience, correspondence and many other affairs which would not exist without the experiment. Consequently, the load on the workers increases, they must work harder, but at the same time their work becomes more interesting.

It is quite clear that many work positions must be outfitted with new equipment, that is, it is necessary to certify the work positions from the standpoint of their correspondence to modern requirements for scientific organization of labor and also to certify the flow lines. Here we are hoping for assistance from the Novosibirsk Branch of the Scientific Research Institute of Labor and the Department of Economics of the Novosibirsk Branch of the Moscow Technological Institute of Light Industry. We have not yet worked out a factorial analysis of the introduction of the experiment and we have not established rational limits on the universality of the workers, that is, the degree of interchangeability within reasonable limits. For there are specific occupations where strict division of labor is mandatory (preparing parts, sewing, and so forth).

It is already time to think about taking the economic experiment outside the laboratory so that the collective contract will be viable when it is introduced everywhere. The results of the labor of Sewing Flow Line No 11 during 1984 and 1985 show that the new economic mechanism helps to increase the output of products. But it raises for us organizational, technical, personnel and other issues which did not exist before. Its further

development in our association will depend largely on how the Scientific Research Institute of Labor and the Institute of Economics and Organization of Industrial Production of the Siberian Branch of the USSR Academy of Sciences as well as the Moscow Technological Institute of Light Industry actually render methodological assistance in the development of the organizational plan, which can no longer be postponed.

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PROBLEMS IN EXPERIMENT DISCUSSED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 1, Jan 86 pp 123-149

[Discussion, prepared by Ye. Lysaya and L. Shcherbakova: "Serious Work Ahead"]

[Text] A. G. Aganbegyan: The current stage in the development of our economy is characterized by the fact that we are actively developing new forms of management. As you know, there is a large-scale economic experiment in progress for expanding the economic independence of the socialist cost-accounting enterprise and increasing its responsibility for the results of economic activity. Since 1 January 1985 almost one-fifth of the country's workers have been working under the new conditions. An experiment is being conducted for improving management in the sphere of consumer services in the RSFSR, and beginning on 1 January 1986 it is being extended not only to krais and oblasts of the RSFSR, but also to other union republics. An experiment is also beginning in construction. Questions of improving the organizational structure of management and more deeply combining branch and territorial planning are being worked out.

At the April (1985) Plenum of the Party Central Committee and the June Conference in the CPSU Central Committee regarding questions of accelerating scientific and technical progress they pointed out the need to change over in the near future from experiments to the construction of a new integrated system for management and control.

In all this multifaceted activity, of course, the key problem is the interest in the final results of their labor on the part of workers and engineering and technical personnel who are directly involved in production. In Novosibirsk an experiment is being conducted on the development of the collective contract in large subdivisions with the participation of engineering and technical personnel.

Today we must look at this experience from broad positions and evaluate its influence primarily on increasing the effectiveness of public production and the development of the labor and social activity of the worker. Let us discuss its key aspects: methodological preparation for the changeover to working under the new conditions, the organization of cost accounting,

questions of distributing wages in the brigades, the role of engineering and technical personnel, and the interrelations of contract collectives and the administration.

The First Findings and Losses

EKO: As we have already said today, 15 industrial enterprises of the oblast are participating in the experiment. We have already heard about the experience of two of them. We should like to hear from representatives of other enterprises.

A. S. Valeyev, director of the chemical and pharmaceutical plant: at the Novosibirsk Chemical and Pharmaceutical Plant the experiment in the selected contract is being conducted at the level of the shops. We have selected two shops that are technologically interrelated: for manufacturing glass ampules and putting medical preparations in ampules. These two collectives account for 60 percent of the overall number of workers employed in the basic production but they produce only 10 percent of the overall volume of products that are produced. But this is an important product. Our plant produces one-fifth of all the ampule preparations for medicinal purposes that are produced in the country, and one might say that we are the only producers of large ampules in the country.

I should stipulate immediately that when concluding contract agreements with these two collectives we did not expect a large leap in labor productivity or volumes since the organizational and economic reserve had been put into action under preceding five-year plans because of the work because of the Dinamo method. Thus the majority of staff workers had gradually changed over from running one piece of equipment for producing ampules to two, and the more skilled workers even ran three pieces of equipment. With the previous normative for 36 people (there were 43 pieces of equipment installed in the shop and they work on two shifts) even by the beginning of the experiment the staff distribution chart envisioned 40 equipment operators--20 per shift. Yet the influx of new workers decreased and it was difficult for us to maintain even this normative. We now have an average of 15 equipment operators per shift.

If one takes into account that the collective is composed of women and many of the absences have to do with the illness of children and statutory leaves, it is understandable that the shop was threatened by a decline in the production volume. Because of the changeover to the collective contract with payment according to the final result we not only managed to avoid this, but we managed to provide for annual increase in the production volumes and labor productivity of more than 4 percent.

The picture was the same in the shop for filling the ampules: here instead of 430 workers according to the distribution chart we actually have 360. To be sure, in the shop for producing glass ampules we still have individual piece-rate payments for the equipment operators since among the newcomers who run one piece of equipment each and our "aces" who work on three machines there is an immense difference in the personal labor productivity. We would lose output if we eliminated payment for individual results. But the additional

bonus payments are dependent on the final result of the entire contract collective.

The work under the contract has consolidated the collective. Mutual assistance and interchangeability have become stronger. If one of the workers is absent her machine is run by others. An average of 15 minutes is saved when the shifts change or, as we say, "the torch changes hands," that is, the burners do not go out (the firing of the ampules from long glass pipes takes place in automated machines that are equipped with gas burners). The adjusters and other time-rate workers have considerably improved the servicing of the equipment and in their spare time they take over machines and produce products.

In the shop for filling the ampules the shop contract collective joins together nine brigades in basic production and four service brigades. Here the payment depends completely on the quantity of products that are prepared--packed and sent to the medical preparation warehouse in ampules. We began distributing an average of up to 10 percent of earnings according to the coefficient of labor participation (KTU) and have now reached 40 percent. The contract collectives are even given the right to distribute some of the 13th wage at their own discretion.

Question: Why conclude a contract agreement? What is wrong with the system of existing indicators?

A. S. Valeyev: When the agreement is discussed and concluded one can see more clearly the role of the labor collective in determining its capabilities and discovering the factors that impede its work.

In our opinion, if the agreement were rejected it would also be necessary to reject the collective contract. Work on improving the agreement policy--among state enterprises and among collectives--is an entire area in economic practice. It is necessary to say directly that in-depth development of the collective contract leads to the need to solve many legal and social problems.

Contract collectives do not work of their own accord. They operate in a particular system of management and production ties and their work is influenced by external factors, for example, shortcomings in planning (our plant's plan for the output of medical preparations in ampules was unjustifiably increased and we had to increase the plans for these shops correspondingly). When there is a shortage of labor force the lack of substantiation of the plans has a negative effect on the work of the contract collectives since they do not see any real possibilities of coping with their assignments. Our technical-economic calculations convinced the VPO and measures were developed for balancing the plan with the capacities.

Finally, these two shops are more vulnerable with respect to energy supply. Recently it has become a bad tradition to have interruptions in the supply of steam from the boiler of the neighboring plant. We participated in its construction on a shared basis but, unfortunately, we do not receive the volume of steam we have coming to us. Can we shift the responsibility for the interruptions in the production because of these factors onto the contract

collective? Of course not. The administration is responsible for this. And it must take measures in order to make sure that the contract collectives do not suffer.

And even under these conditions there is only one conclusion: the experiment is necessary. In the first place, it makes it possible to work with a considerable shortage of personnel, one which exceeds 20 percent. Second, it makes all members of the collective materially interested in the final results. Third, we have found an instrument which makes it possible to experience collective responsibility for our work.

S. S. Gorbenko, director of the Electric Locomotive Repair Plant: It is not clear to me how under the conditions of the collective contract the shop chief can maneuver human resources in the brigade. How does one help the contract team if, for reasons that are known to everyone, the number of personnel has been reduced? One person on the kolkhoz, one person at the construction site and so forth. Try to put yourself in the place of the shop chief and render assistance! The collective form can be reduced to individual work.

EKO: This is indeed a difficult problem for the contract collective. But its solution goes beyond the framework of the enterprise.

A. F. Senin, director of the Novosibirsk Rural Construction Combine: The Novosibirsk Rural Construction Combine is a small organization. The reinforcement shop with 80 people is participating in the experiment. It manufactures reinforcement bodies (5,500-6,000 tons). One must say that the workers have accepted the experiment with great caution and even hostility. The majority said: Why think up something new when the existing system suits us?! As much as they have worked--that much they received, if they have not worked--they receive nothing.... But we still tried to convince them of the need for the experiment.

We are not among those organizations who completed 1984 in good condition. The enterprise did not fulfill the plan as a whole--we ended up in a difficult situation because of the irregular material and technical supply. The reinforcement shop did not fulfill the plan either, although with respect to last year's level the production volume was 101.2 percent. The increase in labor productivity was 18.5 percent and the average monthly earnings--3 percent. In this shop losses of working time decreased as did shutdowns that lasted an entire day, labor and production discipline improved appreciably, there was no overtime work and there was no overexpenditure of the wage fund. In 1984, in spite of a number of serious shortcomings in the work of the reinforcement shops, for the first time we achieved a carryover supply of reinforcements for manufacturing reinforced concrete items, which we had not been able to do for decades. There was some improvement in the work in the various 10-day periods. In 1983 the first 10 days accounted for 25-28 percent of the output, the second 10 days--28 percent, and the third 10 days--up to 48 percent. In 1984--the first 10 days--30 percent, the second--29 percent, the third--41 percent.

According to our observations, in the brigade today there is a tendency to oppose including a person in a brigade if the brigade is not convinced of his

human and professional merits. The brigade resists and it resists resolutely. There have been cases in which people who have not worked well in the collective are expelled from it, that is, the contract brigade places its own rigid requirements on people. And here is material for analysis by scientists.

While previously, before the introduction of the collective contract, there were many difficulties with distributing earnings according to the coefficient of labor participation in the brigades. Sometimes for a number of years a particular group of people enjoyed their old authority. For them the coefficient of labor participation was constantly high from January through December. Now the coefficient of labor participation changes almost every month. The evaluation is stricter and more just. The difference in the earnings is so appreciable for people who work in various ways that this disciplines even absentees and drunks. There is more order in the accounting. We think that if the material and technical supply were better, the contract collective would cope with the program.

Z. V. Orlova, candidate of economic sciences, Institute of Economics of Agriculture of the Siberian Branch of VASKhNIL: two agricultural enterprises are participating in the experiment--the Priobskiy and Morskoy sovkhoses. On the Priobskiy Sovkhoz two shops have been changed over to the brigade contract --crop growing and animal husbandry. In 1984 the plans were fulfilled by 133 and 120 percent, respectively. Labor productivity amounted to 126 and 124 percent of the 1983 levels. And the number of workers in the crop-growing shops remained the same while the number in animal husbandry decreased. The increase in the average wages amounted to 127 and 113 percent, respectively.

Positive results are in evidence. But I should like to share with our comrades from other branches those problems that have arisen during the course of the introduction of the collective contract and on which our institute is now working along with the sovkhoses. One must say that in addition to the mastery which could be envisioned, in agriculture there is one almost -npredictable factor--the weather, and it is difficult to envision this. When developing the experimental conditions the normatives for productivity practically did not take this into account when calculating wages. The brigades in agriculture are large. This has also brought about a number of difficulties. We have divided them into teams.

The composition of the contract collective is now as follows: basic workers, engineering and technical personnel, employees and auxiliary workers.

Since the brigades have different compositions a coefficient has been established which takes into account the difference in the salaries, in the work that is performed and the category. It is taken into account along with the coefficient of labor participation. Additionally, the wage level is affected by the different skill level and the various amounts of time. This is a perhaps somewhat complicated system.

I should like to discuss the wage normative. This problem has not yet been solved in the experiment. But it is a crucial one, especially in agriculture. We are using stable normatives, taking into account stable production volumes.

But productivity differs (it varies 5-6-fold in various years. Therefore in agriculture there is a great overexpenditure of the wage fund. Our colleagues from the Scientific Research Institute of labor had a good idea concerning reserving the fund. But perhaps there is also another solution--changing over to differentiated rates, that is, determining what the output of products should be under particular conditions and, consequently, what the wage normative should be according to the conditions for the application of the labor.

Difficulties in Introduction: To What Are They Related?

EKO: The point of departure for any experiment is methodological development and support. What is the level of these in the Novosibirsk Experiment?

V. S. Petukhov, candidate of economic sciences, deputy director of the Western Siberian branch of the Scientific Research Institute of Labor: our branch is among the scientific organizations which have been entrusted with scientific and methodological guidance of the experiment. What preparatory work did we do even before the changeover to the experiment? First of all--training in a 72-hour program for specialists of enterprises who are now participating in the experiment. We trained 85 people. We developed drafts of methodological documents: for the policy for conducting the experiment, for wages, provisions concerning the council of the collective and so forth. The assigned curators from the leading specialists, who exert direct practical assistance on the subdivisions that are in the experiment.

In the branch there is a permanent consultation point for questions of the collective contract. Each month we organize conference-meetings either in our offices or in the oblispolkom. We invite specialists of enterprises, head economists, and chiefs of divisions of labor and wages. We discuss the prospects and the difficulties that are encountered in conducting the experiment and which sum up the results.

The majority of the subdivisions participating in the experiment have achieved good work indicators, but some of the enterprises have not fulfilled the plan for the production volume or for labor productivity. That is, the picture is varied. Why has this happened? In our opinion, the results of the work depend directly on the degree of realization of the conditions envisioned by the decree concerning conducting the experiment. The more the conditions have been met, the higher the level of preparatory work and the better the results.

EKO: What, in the opinion of those present, needs to be perfected? In what direction should the scientists search?

V. G. Dymant, engineer: Collective forms of labor organization require a high level of norm setting. When it is low at first an effect is achieved under the experiment, but then the wages increase at more rapid rates than labor productivity does.

Yu. G. Shelyukhin, candidate of technical sciences: In the scientific production association the tasks are somewhat different from what they are in series plants. The NPO must create new items and turn them over for mass

production. But there are certain times when circumstances force the NPO to rapidly develop the manufacture of new products in its own production in order to accelerate the supply of them to the consumer. In these cases they change the section over to piece-rate payment and use the system for evaluating labor that exists in the sections with the collective contract.

It seems to me that in terms of its complexity the collective contract is comparable and even more complicated than the introduction of robotized complexes and flexible production systems. Building them into a living and active production organism entails a large amount of reorganization.

R. F. Chernakova, candidate of economic sciences, Novosibirsk Electrical Equipment Institute: That is the whole thing! One of the reasons for the difficulties in the introduction of the brigade contract is related to the lack of understanding of the depth of the restructuring of all the subsystems of the enterprise which is needed. When a robotized complex is introduced into a production process it is necessary to have careful technical and organizational-economic preparation of that section of production in which it is being introduced. And in the case of a changeover to the collective contract it is necessary to rearrange the existing organizational-technical and economic structures of production of the entire enterprise where the lowest level--the elementary nodule of their construction--is not an individual work position and the "part-operation" related to it, but a collective work position and the final product or the "brigade-set" and the corresponding system of wages.

Today there is a crucial question to which there is still no concrete official answer: who should be in charge of the introduction of collective forms? Who should perform that function which already actually exists at the enterprise and has not yet been actually embodied in the structure of its management? At certain enterprises they are creating bureaus for collective forms of labor organization. As the possibilities of these subdivisions are "cut off" beforehand and they do not correspond to their purpose since frequently these bureaus are under the jurisdiction of divisions for scientific organization of labor or labor organizations and, consequently, they can solve problems only at the level of the managers of the services.

It is known, for example, that the success of the introduction of the collective contract is determined by the quality of the preceding preparation, including engineering preparation. But is it really impossible for services for scientific organization of labor or divisions for labor and wages to actually influence this preparation by managers of other services who are at the same service level? Of course not. It can be controlled only by a manager of a higher level in the management of the enterprise--the director or his deputy.

V. S. Pitukhov: The collective contract, like all other new ideas, is constantly coming up against obsolete provisions, instructions and other normative documents which make it impossible to utilize all of its advantages and create difficulties in conducting the experiment. This includes, above all, the existing practice of planning from what has been achieved which, as we know, has led to a reduction of the interest of the subdivisions of

enterprises and individual workers in increasing production volumes and increasing its effectiveness.

A second difficulty is material and technical supply. Of the first 132 days of work under the contract the collective of Shop No 10 of the instruments plant worked 72 days with interruptions because of the fact that it had failed to receive more than 30 percent of the funded metal. Because the metal the same situation arose at the Novosibirsk Rural Construction Combine, in the Novosibirskpromstroy Trust and others.

The existing system of management does not provide for the utilization of all possibilities that lie in the nature of the collective contract. The decisions that are made continue to be basically administrative and not economic in nature. The management staff does not bear economic responsibility for the consequences of the decisions they make. In contract collectives which are clearly oriented toward the final result, all shortcomings in the methods of management are reflected especially painfully.

K. T. Dzhurabayev, doctor of economic sciences, Novosibirsk Electrical Equipment Institute: It seems important to check on the progressiveness of the brigades (their types) which are created under the conditions of the experiment. In the official report to the enterprises we see a list: so many comprehensive brigades, so many all-encompassing brigades, so many brigades with payment for a unified order according to the final result, so many cost-accounting brigades.... In each brigade there is one of the aforementioned indicators while today it is necessary to create contract collectives which embrace the totality of all of these indicators. Under the conditions of the contract the brigades should be comprehensive, all-encompassing, with payment for a single order according to the final result and in the future they should be completely run by cost accounting.

Of course the new type of brigade should be formed on the basis of an organization plan. From our point of view it is necessary to have a unified methodological approach to the organization of the labor of collectives participating in the experiment. Otherwise the confusion in the methodological base affects the specific features of the enterprises and branches and makes it impossible to provide for comparability of results. The department of economics and organization of industrial production of the Novosibirsk Electrical Equipment Institute has experience in creating unified methodological bases for planning collective labor processes. There is some point in taking advantage of this, the more since the experiment is developing in both breadth and depth, drawing into its orbit not only brigades and sections, but also entire shops and productions.

Question: You have now named the problems in whose solution practical workers are interested. We are experiencing a need for methodological assistance. When will we actually receive help from science?

K. T. Dzhurabayev: Our department is developing a methodology for norm setting for labor under the conditions of the collective contract. We are completing the compilation of standards for collective organization of labor.

V. G. Zavyalov, general director of the Sibelekterm Association: We are ready to conclude an agreement with you for working on this subject for the Sibelekterm Association.

K. T. Dzhurabayev: And we are interested in cooperating and in verifying our suggestions. Let us cooperate!

V. G. Dymant: Comrade scientific workers and everybody who is observing the course of the experiment! We are being suffocated by an abundance of reports! And from outside they demand as many as they want, in any cross-section--ispolkom, oblast trade union council, institutes. When the commission from the State Committee for Labor and Social Problems came to visit us for two experimental sessions we had to produce 300 pages of reports within 2 days. Then we received 20 questions concerning changes in the nature of the work of engineering and technical personnel. It is necessary to reduce the flow of reports. The same economists and norm setters sit on Saturday and Sunday and say: "The experiment should be closed down" even though in and of itself it is good. We expressed our opinion to the oblast commission--gather and organize brigades from institutes and conduct scientific work at the enterprise! We shall help and put the information at your disposal, but do not overload our production workers with the tasks of compiling it!

The Contract Agreement and Cost Accounting: A Nest of Unsolved Problems

EKO: The provisions concerning the Novosibirsk Experiment stipulate that the production activity of the contract collective is carried out on the basis of an agreement concluded with the administration from the period of the experiment or for a year, and the interrelations between the brigade and the administration and the associated production subdivisions are arranged on principles of intraplant cost accounting. Judging from the course of the experiment and certain of the statements today, these conditions have not been completely embodied and the attitudes toward them vary. I should like to discuss especially the problems of the contract agreement and low-level cost accounting.

V. S. Pitukhov: It seems to me that there can only be one answer to the question of whether or not the agreement between the contract collective and the administration is necessary: it is. This agreement, on the one hand, increases the responsibility of the brigade for the fulfillment of assignments and, on the other hand, the responsibility of the administration for the creation of the necessary conditions for the work of the brigades.

The agreement is the document on the basis of which the contract collective can make complaint-sanctions against the administration and against associated collectives, and they have the right to make countercomplaints. If there were no agreement there could be no discussion of a contract. Therefore it is written in the provisions concerning the Novosibirsk Experiment: one of the main necessary documents is the agreement between the contract collectives and the administration.

G. I. Loginov, chief of the Installation and Technological Administration: You say that the agreement should impose discipline. But on whom?

V. S. Pitukhov: It should impose discipline on both sides. Today cost accounting conditions put only the contract collective in a responsible position. If it does not fulfill the planned assignment it must be deprived of its bonus and thus it bears material liability. But if the conditions are not fulfilled by the administration, the brigade cannot apply any material sanctions against it. In the Severyanka Sewing Association and at the instrument plant attempts were made to introduce cost-accounting influence for violation of conditions of the collective agreement. At Severyanka the contract shops filled out and submitted to various subdivisions a multitude of complaints and sanctions, including to the supply division for 90,000 rubles, but the division could not give them this. The chief of the division had not earned this much in his entire life. Therefore the cost-accounting complaints turned out to be formalities. To be sure, they had a great moral influence.

V. G. Dymant: Most of the complaints against the administration from the brigades when the agreements are discussed are explained by the poor material and technical supply.

Yu. G. Shelyukhin: In my opinion, V. S. Petukhov is mistaken. In the office it frequently happens: the administration is responsible for everything. Take the fulfillment of collective agreements. Their verification has turned into one-sided reports from the administration. And yet there are violations of labor and technological discipline of the workers and also other violations which could be appropriately discussed at meetings for verifying the collective agreements. So I am afraid that the agreement between the brigade and the administration might turn into such a one-sided document with responsibility only on the part of the administration.

V. G. Dymant: According to my observation, the failure to fulfill agreements is still mainly the fault of the administration, but not because it is poor, but because not everything depends on it. Sometimes the delivery of materials is delayed or the supplier produces different material and the quality in the brigade declines. If they were to do what they did in the Severyanka Association--gather up the complaints and not react to them, after a certain amount of time people would say: "You write and write and there is just no point in it." Indicators and conditions for bonuses are established for the brigades. What else is needed? It seems to me that it is better to maintain traditional methods of planning and responsibility than to go in the direction of what is unrealistic and unfeasible.

Z. V. Orlova: But still it seems to me that there cannot be a contract brigade without an agreement concerning the contract. In my view it is broader than the cost-accounting assignment. It adds a number of important points which concretize the responsibility of the two sides for observing the conditions of the agreement....

V. S. Petukhov: The realization of contractual and cost-accounting relations is made difficult because of the fact that the sources of reimbursement for losses are not clear. Thus in the provisions concerning cost accounting for a number of experimental subdivisions it is written that the damage caused to the contract collective should be reimbursed out of the bonuses of the guilty

party. What happens in cases when these guilty parties do not receive a bonus for some other reason? Or another example. The contract collective for some reason is not fulfilling the plan for production volume. In this case the wage is calculated for engineering and technical personnel and time-rate workers according to the normative turn out to be less than their salaries and wage rates. It is necessary to give them additional payment. But from what funds and what sources is also not clear yet. And if more sanctions are declared against the contract collective it will have nothing with which to make up for the losses because of the lack of the variable part (bonuses) of the collective earnings.

All these questions are linked to one degree or another to the source of reimbursement for losses under the sanctions that are submitted. Today there simply is no such source and it must be created. Again the question: how should it be created and from what funds? Now in our branch of the Scientific Research Institute of Labor we are considering the idea of creating a reserve fund in the contract collective and we are developing a policy and methods for forming and utilizing it. It is assumed that such a front can be formed from the collective part of the earnings, the bonuses for economizing on material expenditures and some of the money transferred to the collective for sanctions and complaints which are not utilized during distribution. It is important that no additional money or sources of financing from outside the enterprise or branch are needed to form the reserve fund. At the same time it will be possible to carry out cost-accounting relations on a real basis and, in the final analysis, come considerably closer to real cost accounting.

Among the other factors that impede the introduction of cost accounting in the local production collectives one should name, first and foremost, the lack of preparation of the enterprises themselves and the normative and methodological base, and the higher administrative branch agencies and scientific institutions should take responsibility for this.

The lack of preparation consists, first of all, in the lack of a reliable system for intraplant planning and accounting for material expenditures on the production of products and the kinds of work performed by the collectives of the sections and shops. Another impeding factor at the majority of enterprises is the lack of normatives of material expenditures on production with which one can compare the actual expenditures in order to determine the savings or overexpenditure. And, finally, the lack of solutions for methodological problems concerning cost accounting interrelations between the contract collective and the administration, functional services and associated production sections and shops.

G. I. Laginov: You are suggesting that complete cost accounting be operative at the level of the brigades. But should we not think about how great would be the increase in the number of personnel of the management staff which would provide for the functioning of this cost accounting? There is a constant reduction of the number of workers on the administrative and management staff. It seems to me that it is necessary to take a comprehensive approach to the problem of lower level cost accounting, taking into account all possibilities and unsolved problems.

R. F. Chernakova: In essence it is too early to speak about complete cost accounting in all of the local collectives. The problem can be raised for the near future, but now it is more reasonable and realistic to raise the question of creating conditions for lower level cost accounting.

The lack of a normative base for accounting for the expenditures on the elements of the production cost at many enterprises has already been discussed. But taking all this into account still does not mean introducing cost accounting. This means simply that initial accounting has been arranged. But certain conditions and technical possibilities are also necessary even to do this. One must not forget about the lack of instruments for monitoring the expenditure of electric energy, water, gas, steam and so forth. Today there are usually one or two instruments in the bay of the production building of the existing enterprises. The number of these is not increasing the plans for new productions. In such a situation how does one keep track of all the kinds of expenditures in each brigade? In the future it will be necessary to include the appropriate number of monitoring instruments in the plans for new enterprises and for the reconstruction of existing ones. And industry must increase the output.

The question of the need to introduce a section for organization of labor into the organizational plans for new enterprises and the reconstruction of existing ones and the change in the requirements for expert evaluations of plans when they are defended and approved has been raised repeatedly in economic literature. But this issue has not yet been resolved either by the Gosstroy or by the state committee for labor and social problems. Planning organizations are also striving to economize on estimated expenditures and this is also being done at the expense of the division for the organization of labor. But then the workers of the enterprises have to throw up their hands and refer to the fact that the corresponding orders were not made on time, there are no monitoring instruments and so forth.

In order not to increase the number of accounting workers at the enterprise when introducing low-level cost accounting it is necessary to transfer this work to machines. We must recognize that so far there is no scientific-methodological or program support for such tasks and even when forming the volumes of output of computers for the 12th Five-Year Plan, most likely, this year their application is not being taken into account.

Yu. G. Shelyukhin: I think that not only all indicators for complete lower-level cost accounting should be calculated with computers, but also those cost-accounting elements without which in general it is unthinkable to have a contract collective, for example, labor expenditures. In order to account for labor-intensiveness in norm-hours one can develop programs for various conditions. The enterprises are prepared to conclude an agreement with anyone who will take on the development of such a package of programs.

The Engineer in the Brigade

EKO: From the course of the experiment what conclusions can be drawn concerning the role and the influence of engineering and technical personnel who are included in contract collectives on the final result, and their

contribution? Has the utilization of their creative potential improved and the return from this increased?

A. S. Valeyev: The return has undoubtedly increased. There is now no defective work at all which is the fault of the shop technologists. They have not only increased control over the course of the technological process, but also render assistance to the workers in mastering new technology and, when necessary, they themselves take over the jobs since their incentives depend on the final result.

Because of the collective contract there has been a considerable increase in executive discipline and the foreman no longer has to deal with trivia. Therefore he can combine the management of two sections, which is extremely important for us since we have a shortage of engineering personnel at the plant. There are now 17 engineering and technical personnel working in the shop for filling ampules instead of 21, but under the conditions of the contract they can control the production process without interruptions or losses. For combining occupations an engineer receives 1.3 salaries but additional bonus payments for the coefficient of labor participation.

Z. V. Orlova: We have approached problems of wages in a differentiated way. If engineering and technical personnel and employees work in a brigade, they are given their remuneration during the course of the year or at the end of it. For engineering and technical personnel, managers and specialists who serve the branch as a whole advances have been established during the course of the year according to their salaries and at the end of the year--for the final result. Here an attempt has been made to "attach" the wages not only to the final result, but also to the savings on material expenditures.

K. T. Dzhurabayev: Now the inclusion of engineering and technical personnel and managers in contract collectives is considered largely from the standpoint of distributing earnings among them. A great deal of attention is being devoted to this by the oblast labor commission for the experiment and by the enterprises themselves. But it seems to me that the creation of normatives for wages taking engineering and technical personnel into account is no great problem, and these can be calculated. But what about the problem of accounting for the quality of their labor, which is leveled in such brigades? Everybody knows about the assistance from technologists and foremen in the fulfillment of the production plan when they take over work positions. But is there not a danger that carrying out concrete, immediate production tasks will hinder engineering and technical personnel and employees from performing their own direct functions?

Another important aspect must be considered--do the masters and technologists not end up being completely dependent on the contract collective which is concerned about achieving a particular final result and is not directed toward the future, toward solving problems of accelerating scientific and technical progress? This is something that needs to be carefully checked during the course of the experiment.

It seems to me that more clear-cut regulation of their functions when developing the organizational plan for the contract collective could

contribute to solving the problem of the utilization of engineering and technical personnel. They should contribute to the professional specialization of the engineer.

Question: So are you against including engineering and technical personnel in the brigade?

K. T. Dzhurabayev: No, this is not so. I am raising the question of clarifying their functions and correctly utilizing the creative potential of the engineer.

Yu. G. Shelyukhin: The engineer in the brigade should mainly search for possibilities of reducing the labor expenditures of his own collective as a result of applying new machines and technological processes. It can be no other way. I am surprised that we are even discussing this problem. We have forgotten about the purpose of an engineer. He is called upon to provide new ideas and technical solutions. And he should be paid as much as he deserves for the effect from creative research. Then the brigade will operate well and the engineer will be fulfilling his role. If he has earned three salaries--let him have them! But then the corresponding effect should be produced. Today intervention and limitations are already starting in the earnings--and the interest in carrying out super tasks is being lost.

A. G. Aganbegyan: We are discussing a key issue in socialist management--how best to mobilize social and organizational-economic factors that lie outside the individual in order to increase the effectiveness of production. Are these factors great and to what extent can they be used to increase labor productivity with the existing technical base? Numerous economic experiments conducted in various branches have shown that these reserves are very great.

A footwear flow line, where there is a compulsory rhythm of the conveyor and where people work with great intensiveness, can increase labor productivity by one-third with the same equipment and also improve product quality the same can be said about many other jobs! Take the gold mining industry. All that was necessary was to change a brigade that washed gold from payment for turning in sand to payment for a gram of gold and labor productivity increased 2-3-fold. The brigade began to work in a different way, without taking breaks. For example, it has eliminated the shift chief and used another, more efficient placement of workers, and it has partially eliminated the repair workers. The people have learned to repair the equipment themselves.

Of course in other places the reserves are less. But what we have now heard about the experience of the Elektrosignal Plant, the skilled production, which is sufficiently mechanized and stable with a developed technology especially convinces us of the examples of the collective contract. For with the same technology labor productivity here has increased 2.5-fold in 10 years. This is how great the organizational-economic and social reserves are. And the main thing is that we must utilize these reserves better. The 12th Five-Year Plan will be the most difficult in our lives with respect to labor resources. For the first time we will have to obtain all of the increase in production as a result of increasing labor productivity. And we must not only maintain the

rate we have already achieved, but increase the rate of growth of labor productivity at least 1.5-fold.

The utilization of organization of organizational-economic and social factors is the most important path to increasing labor productivity, especially at first, in order to create means and conditions for the main thing--acceleration of scientific and technical progress. For new technology without good organization of the work of people will produce little. It only leads to increasing the cost of the product.

There are two paths to incentives, one of which was taken during the course of the reform of 1965, using incentives from profit through the incentive fund. The proportion of this incentive fund with respect to the wage fund is in percentages and it can be used well to provide incentives only for one category of workers--engineering and technical personnel, and the laborers basically remain on the outside here. This did not do much good. Therefore there was no explosive effect or radical acceleration in the growth of labor productivity in industry. But now we need a radical improvement in increasing the effectiveness of production and labor productivity.

The other path is more complicated--incentives from the gross income. This is essentially piece-rate for the final results--the collective contract, whereby all of the earnings are included in the incentives. It is more effective and it can be a stronger motivation with the correct approach. But it is also more risky: it can lead to negative consequences when norms are established incorrectly and so forth.

Now collective forms of labor organization have finally begun to develop not so much in breadth as in depth. There was no real collective contract or cost accounting with the corresponding organization and payment for final results in the majority of brigades; this largely formal expansion produced very little. Brigade forms encompassed 40 percent of the workers, but there were no appreciable positive changes in effectiveness. Therefore the main task is to develop collective forms of labor organization in depth. Development in depth means raising the level of organization of these collectives, deepening cost accounting of contract brigades, and introducing it in the sections, shops and entire enterprises. And here is a key aspect--the inclusion of engineering and technical personnel in the brigade. We have approached a point where the average wages of skilled workers have exceeded the level of payment for engineering and technical personnel. Even in 1960 the wages of engineering and technical personnel were 1.5 times greater than those of workers. When the workers joined together into a brigade begin to increase productivity no less of a load falls on the engineer: there is increased danger of violating the rules of technical safety and it is necessary to step up control over product quality. But the wages of the engineer did not depend on the increased load.

To a certain degree the inadequate level of engineering support for the work of the brigades led to a situation where many of them existed only as a formality. And therefore it is very important to combine the interests of the engineers and the workers in collective forms of labor organization. With a correct arrangement of the situation the engineers here will take a creative

approach, will improve technology and the quality of items, will increase the organization of production and labor, that is, they will engage in real engineering work.

Further deepening of the collective contract should proceed along the line of the development of cost accounting fundamentals and incentives not only for reducing labor-intensiveness and increasing productivity, but also for the quality, for economizing on raw material and for better utilization of equipment in places where it can be assigned to the corresponding collective.

The question of the contract agreement is very important. The agreement between the contract collectives and the administration necessarily must contain points concerning material responsibility not only of the labor collective but also of the administration--initially at least for bonuses for administrative workers and the incentive fund. But clear-cut conditions and indicators are necessary for this.

The brigade contract appeared not because somebody decided to introduce it from above. This movement came from below. It was originated by life, by particular conditions. Then it was supported from above. And this healthy movement from below should strengthen the economic experiment and all kinds of progressive changes in the economic mechanism which are introduced from above. The large-scale economic experiment as a whole has produced a certain positive result. But even in those branches which did not change over to the experiment in 1984 the positive changes in the indicators of effectiveness were approximately the same. There has been no sharp leap in effectiveness so far (although individual enterprises have had excellent results). I would explain this to a considerable degree by the fact that improvement of the economic mechanisms from above in many cases was not sufficiently coordinated with the movement for collective forms of labor organization from below. I have had occasion to visit many enterprises and I am convinced that the large-scale experiment did not actually reach the work position.

In general this is a matter for the future and I hope that the Novosibirsk Experiment will become widespread in the country and will be one of the cornerstones of the new and more effective economic mechanism.

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LABOR COMMITTEE CHAIRMAN INTERVIEWED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 1, Jan 86 pp 143-149

[Interview with Deputy Chairman of the USSR State Committee for Labor and Social Problems, B. N. Gavrilov, by V. Kutyrev and G. Korovalov: "The Opinion of the USSR State Committee for Labor and Social Problems"]

[Text] During 24-25 May 1985 at the all-union exhibit of the achievements of the USSR national economy there was a seminar on the subject "Experience in Applying the Collective Contract in Large Structural Subdivisions of Enterprises of Novosibirsk Oblast." Participating in it were representatives of ministries, departments, associations and enterprises, scientists and brigade leaders. Reports and announcements were given by the deputy chairman of the Novosibirsk Oblispolkom V. F. Volkov, the head of the economics division of the party obkom, Ye. S. Shibanov, and the leaders of enterprises, organizations, shops and sections that are conducting the experiment as well as representatives of science in Novosibirsk.

Taking into account the great interest evoked by the speeches at the seminar and also the thematic exhibit "Brigade-85" where the Novosibirsk Experiment was represented, the editors of the magazines EKO and SOTSIALISTICHESKIY TRUD decided to organize a detailed elucidation. To this end the correspondent from EKO, V. Kutyrev and from SOTSIALISTICHESKIY TRUD G. Kononov went to the leader of the seminar, deputy chairman of the USSR State Committee for Labor and Social Problems [Goskomtrud], B. N. Gavrilov and asked him to give a general evaluation of the course of the experiment and answer certain questions related to the way it was being conducted. The interview with B. N. Gavrilov is published below.

[Question] Boris Nikolayevich! What from the standpoint of the USSR Goskomtrud is the most essential thing in the Novosibirsk variant? We have heard statements to the effect that under the conditions of the experiment there is nothing new as compared to preceding undertakings, for example as compared to the Shchekino method or incentives for labor when engineering and technical personnel are included in the brigade. Is there a fundamental distinction between the Novosibirsk experiment and other variants of the collective form of organization and payment for labor?

[Answer] Obviously, one can single out two main features. First, from the very name of the experiment it is clear that we are speaking about larger structural subdivisions than the brigade. Second, there is a greater degree of unity of the interests of everyone on whom the final results depends--both workers and engineering and technical personnel. We understand that the experiment in Novosibirsk is being conducted on two levels--the section and the shop. Along with piece-rate and time-rate workers the collective includes engineering and technical personnel. For example, a section that has been changed over to the contract principle includes technologists who were previously assigned to it. Each collective is headed by a chief (and not a brigade leader). Rates are established for the final results, which includes both wage rates for workers and salaries for engineering and technical personnel. The labor of both categories of workers is paid for according to the final result and only for the work that is actually done. It is precisely because of this that one creates unity of interests of everyone, and particularly engineering and technical personnel, in doing a large volume of work with a fewer number of workers. The mutual commitments and the responsibility of the size (the collective and the administration) are worked out according to agreements that are concluded between them, that is, conditions are established for changing over to contractual relations in the primary units of management. I repeat, this is the principal difference between the form of organization and payment for labor that is being tested in Novosibirsk and the generally accepted brigade form. Additionally, the creation of contract collectives in a large structural subdivision makes it possible to establish cost-accounting interrelations in a planned way within the framework of the system that is in effect at the enterprise.

[Question] The experiment is coming to an end. How would you evaluate its results and what are the prospects for the extension of the Novosibirsk Experiment to other regions of the country? What does the Goskomtrud intend to do in this area?

[Answer] Now we can boldly state that in the majority of cases high effectiveness has been achieved with contract forms of organization and payment for labor at the level of production sections. We have evidence of effectiveness--both economic and social. The first year was a year of research and establishment, but even now not all elements have been sufficiently tested. But the main thing is that the principle of the collective contract has been worked out at the level of the section. The Goskomtrud considers it expedient to disseminate it extensively, having transformed it into the normal system for the organization and payment for labor in industry and a number of other branches of the national economy. As for shops, here the experiment requires further development, both

methodological and organizational. The experiment has shown that it is necessary to refine a number of issues in the system of the economic mechanism as a whole and, apparently, at the shop level the experiment should be continued.

[Question] Obviously one cannot say that the experiment went along, as they say, "without a hitch." What difficulties arose and how were they overcome? What lessons should be drawn from the experience of the Novosibirsk workers by those who will borrow this experience?

[Answer] As with any new thing, the work on the experiment is extremely complicated. Many questions arise, including those of a psychological nature. The main conclusion for followers of the Novosibirsk workers, in my opinion, is that the experiment requires serious preparation--both organizational and economic. It should be organically combined with new forms of planning and material incentives, and with the large-scale economic experiment. A collective that has been changed over to the new conditions should have clearly formulated goals and tasks which should be achieved or resolved during the course of the experiment, that is, it is necessary to determine the goals for increasing labor productivity and the output of products--in terms of volume and physical indicators. This beginning has been made.

It is necessary to approach very carefully the determination of the rates per unit of output and the inclusion of engineering and technical personnel in contract collectives, and this should be done not as a formality, but in places where it is actually necessary, and the engineering and technical personnel to be included should be those who directly provide for the work of the given section. And the main thing is that it is necessary to have stable rates for a long period--at least 3-5 years. Understandably, these must be established taking into account the planned reduction of the labor-intensiveness of the products.

Finally, social issues should be worked out beforehand. A contract collective cannot be created simply by an order; this must be preceded by individual work with literally each member of the section or shop that is being changed over to the contract. It is necessary to determine and clarify the conditions for the work and the tasks which will be set for the individual, and it is necessary to comprehensively compare his output with that which should be achieved and to show the advantages of the new conditions of wages as compared to the previous ones. In other words it is necessary to make the people our allies, enthusiasts of the collective contract.

[Question] Boris Nikolayevich! People are now frequently saying that the experiment is being conducted here without sufficient legal substantiation. Is this really true and do management workers really have to fear the consequences of participating in it?

[Answer] There is no justification for such fears. In the first place, the experiment is being conducted by the USSR Goskomtrud and the AUCCTU, and they have been granted the right to permit economic experiments in the area of wages. Second, it is being carried out with the agreement of the USSR Council

of Ministers. Moreover, the conditions of the large-scale economic experiment are becoming a constituent part of the overall system of planning and economic incentive, which was discussed in detail at the conference of the CPSU Central Committee regarding questions of accelerating scientific and technical progress, and the Novosibirsk Experiment is organically included in the economic mechanism and provides for extending the principles of the general large-scale experiment to the work position. There are, of course, dangers that the sections will exhaust their reserves and at the end of experimental testing of the new conditions they will be threatened with planning "from what has been achieved." But this would be wrong, and the conditions of the large-scale experiment make it possible to avoid such mistakes.

[Question] The experiment involves the section and the shop but these subdivisions are only parts of the larger structural units--enterprises and associations. The conditions for conducting the experiment require transformations within the frameworks of these units. Under whose competence are these? Is it necessary to coordinate them with branch agencies, the USSR Goskomtrud and the AUCCTU?

When answering this question it is necessary to take into account that the experiment changes the existing conditions for wages. And one must say directly that to a considerable degree it stimulates work with a smaller number of people, but at the same time it sometimes requires greater funds. It is envisioned that the contract collective will be able to keep all of the savings on the wage fund obtained as a result of the release of extra personnel. (According to a number of other provisions only a part of these savings remain with them). Because of this further changeover of other subdivisions to conditions of the experiment still requires a decision from the higher agencies and should be coordinated with the USSR Goskomtrud. At the same time we are beginning to grant these rights to the enterprises themselves. So there should be no question of any paths that impede their initiative.

[Question] We should like to develop this question. Indeed, now, according to the existing provisions, when personnel are released in the subdivision it retains only part of the wages of the released worker and the rest of the savings on the wage fund goes into the budget. But according to the conditions of the experiment the collective can keep the entire salary or wage. Does this not lead to a violation of the ratios between the rates of growth of labor productivity and the wages? It is simpler to solve this problem when a section or even a shop is working under the conditions of the experiment, but what happens if the corresponding rights are extended to the association (enterprise, organization) as a whole? Or perhaps it is in the collective contract itself that one finds the potential possibilities which make it possible to avoid violations of the balance?

[Answer] Experience shows that now at the level of the shop the ratios between the increase in labor productivity and the wages frequently are not maintained, which in a number of cases leads to an overexpenditure of the wage fund, especially when the plan is overfulfilled. At the same time the potential possibilities of increasing labor productivity as a result of reducing losses of working time and a number of other factors in contract

collectives of shops are still not being fully utilized. Apparently it would be correct to establish for them such normatives as would provide for a normal ratio between the increase in labor productivity and wages and would motivate them to accelerate the increase in labor productivity. When these ratios are not observed the corresponding economic sanctions should be applied to the collective.

[Question] As practice shows, in a contract collective there is extensive combining of occupations and jobs, the boundaries between piece-rate and time-rate workers are actually erased, and it is as though a unified collective piece-rate worker is formed. Yet the reports require accounting for the fulfillment of the output norms by piece-rate workers (according to the amount of time worked at the piece-rate). Is it intended to change this correspondingly?

[Answer] With today's scale of the development of contracting sections it is apparently premature to talk about such changes, although the problem of reports according to norm setting will be resolved. In the contract collectives itself there are both piece-rate and time-rate workers, and one can conventionally call it a "collective piece-rate worker." In my opinion it would be more correct to pose the question differently: in this case is it necessary to take into account the fulfillment of individual norms? Here it is necessary to further work over the factual material, but so far they are necessary. Incidentally, accounting for their fulfillment helps to establish the coefficient of labor participation more objectively.

[Question] The practice of applying the collective contract shows that the traditional classification of workers is outdated. There is the widespread opinion that there is no need for a separation between basic and auxiliary workers and administrative management personnel or a need to issue orders to reduce the number of personnel since the contract collective can decide best for itself who can be expediently released. Any changes earmarked in this matter?

[Answer] Is it necessary to divide the workers into basic production and auxiliary workers? There are many arguments about this. In our opinion one should refrain from such a division. In contract collectives it is clearly inexpedient, and this is proved by the experience of their activity in flexible automated productions. As for administrative and management personnel, this question almost does not pertain to the section (and they are what is being discussed now). At the enterprises we should charge over to the normative method of planning the number of engineering and technical personnel.

[Question] The earnings of a contract collective are formed according to a normative per unit of output (work). When the plan is fulfilled for volume the bonus is calculated on the basis of the maximum possible amounts for various categories of personnel: time-rate workers, piece-rate workers, specialists and managers. Because the requirements of the collective contract (the achievement of a unity of interests, common interest in a high final result of joint labor) such a policy is hardly acceptable. What should be done to change it?

[Answer] It is hardly necessary to include a bonus in the piece-rate earnings as has been done in a number of sections of enterprises in Novosibirsk. But it is necessary to establish unified indicators for the entire collective. In the final approval for bonuses for managers of the contract collective should, in my opinion, be given by the shop chief or the director of the enterprise, that is, the higher manager.

[Question] In the existing provisions concerning the distribution of collective earnings the wage rate of the category for the time worked and the salary are taken as a minimum. But the worker's actual contribution is frequently less than this amount. What is your attitude toward proposals to be oriented at a minimum of 70 rubles in this case? Should one not introduce this into the new variant of standard provisions for the experiment?

[Answer] Today in a number of branches, particularly in the coal industry, all earnings are distributed according to the coefficient of labor participation. This is correct. Recently the USSR Goskomtrud and the AUCCTU adopted a conclusion concerning granting the collective the right to establish for itself which part of the earnings to distribute according to the coefficient of labor participation. Here it is not at all mandatory to be oriented even toward the minimum wage. In the future it will increase, but why give guarantees to an idler?

[Question] The Shchekino method and a number of other innovations have been unsuccessful because a limit has been introduced for increasing earnings. According to the conditions of the Novosibirsk Experiment "ceilings" on wages are actually not established (within the limits of the overall fund). Will this condition be maintained in the future?

[Answer] It is wrong to say that the Shchekino method was a failure. Perhaps no other undertaking like this in our country has become so widespread or was as popular as was the method of the Shchekino chemists. It was used in many decrees and the given method became a constituent part of the entire system of wages in the country. The basis of the Shchekino method was also reflected in the conditions of the Leningrad experiment when preparing the decree concerning wages for designers and technologists.

It is another matter than in certain of our constructions there actually has been superfluous limitations which have now been removed. As for the Novosibirsk variant, it is the duty of the ministries, departments and our local agencies to make sure that the initiators do not finally end up in a disadvantageous position.

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CONDITIONS FOR IMPROVING ECONOMIC MECHANISM LISTED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 1, Jan 86 pp 150-163

[Article by M. V. Lychagin, candidate of economic sciences, docent of the Novosibirsk State Institute imeni Leninskiy Komsomol: "A Wind Tunnel...Four Instructions"]

[Text] What does the economic mechanism need to work? Success and the functioning of the economic mechanism depends on many conditions. Three of them stand out because of their practical significance.

The first pertains to the quality of the methodological accompaniment of the economic mechanism.¹

Apparently there is no need to beat our heads against the wall trying to prove that methodological guidelines, provisions and instructions which are oriented toward thousands of enterprises and organization and are frequently joined together under the responsible title of "normative documents" should be deeply thought out, intercoordinated, logically noncontradictory and clearly defined.

But here is just one example. In the "Guidelines on the Policy for Establishing Incentive Increments to Wholesale Prices"² it is noted that up to 70 percent of the sum of increments "is sent to the economic incentive funds of industrial associations (enterprises), scientific research, planning-design and technological organizations." This guideline merely repeats Point 52 "b" of the decree of the CPSU Central Committee and the USSR Council of Ministers of 12 July 1979 concerning improvement of the economic mechanism without concretizing the possible portions of this distribution. Yet for a practical worker it is important to know precisely which part of the increment goes to the funds for material incentives and social-cultural measures and housing construction, and which part goes into the fund for the development of production.

Another condition for success in improving the economic mechanism is the organization of the assimilation of new methods of management. They are studied for a number of years and encompass all participants in management--from students at the Academy of the National Economy to the schools of economic knowledge. There is no doubt about the importance of this work. But

any new provision which is oriented toward extensive study should be presented in a form which allows this. Unfortunately, this is not precisely the way it always is. In the annual plans of associations and enterprises of the Ministry of the Electrical Equipment Industry during the course of the economic experiment they approved "growth of labor productivity calculated according to net (normative) output taking into account the proportion of the economic effect from the application by the consumer of new, highly effective products of the highest quality category." The planned sums of the wage fund and the funds for material incentives and social-cultural measures and housing construction will depend on this. The methods for calculating it were published in EKONOMICHESKAYA GAZETA.³ But the information presented in the newspaper is quite inadequate to clarify it. In order for a teacher to be able to answer a question of a curious economics student or a student at an institute for increasing qualifications concerning the behavior of the new indicator, he must go to one of the enterprises of the Ministry of the Electrical Equipment Industry and obtain in letters of instruction there, from which it is possible to find out:

1) the proportion of the effect varies extremely for various VPO's of the Ministry of the Electrical Equipment Industry. But it still remains unclear why for certain VPO's this proportion is equal to 0.2 and for others--0.8;

2) since labor productivity is calculated according to the net (normative) output, any economic effect from individual items--according to wholesale prices, for comparability the economic effect is divided into the corresponding wholesale price and then is multiplied by the normative of net output. Such an action is not obvious since in the formula for calculating the effect instead of the prices one can directly put in the values of the normatives of net output;

3) when calculating the rates of growth of the normative net output the increase in the total economic effect (taking into account the corresponding share) in the planning year is subtracted from the numerator of the fraction, which is also an unusual operation.

And, finally, the third condition. When designing methods, provisions and instructions that determine the new economic mechanism and making them familiar to millions of workers in the sphere of material production one should obviously obtain as many confirmations as possible that the planned measures will produce the desired effect.

New models of technical equipment are subjected to comprehensive testing in various conditions. The experiment is utilized in economics but it is a complicated and costly affair. In economic literature one more and more frequently encounters the opinion that in order to increase the effectiveness of economic experiments it is necessary to investigate the new management mechanism as completely as possible with the help of a complex of special imitation models.⁴ If one compares the economic experiment with flight testing, it should be preceded by "trial runs in a wind tunnel."

And so for successful improvement of the economic mechanism it is necessary, among other things, to solve the following problems: to provide a logical

structure and definition for the entire system of methodological guidelines, provisions and instructions; to create conditions for rapid and adequate assimilation of the entire complex of changes under the conditions of management; to develop experiments with models of economic mechanisms in order to select the best structures and reduce expenditures on conducting experiments in real life.

For solving these problems one can suggest the following methods of comprehensive analysis of systems of planning and economic incentives.

1. A conventional enterprises is designed which produces one kind of product with the simplest natural and physical interconnection. The characteristics of the products and the enterprise should be similar to real ones in a particular branch of industry.

2. A conventional new items is designed which, in terms of its technical and economic specifications, is different from the base ones and for it one calculates all of the established indicators (economic effect, wholesale price, normative net output and so forth).

3. At the conventional enterprise one "organizes" the assimilation and output of new products and calculates the various indicators of the activity of the enterprise.

Even these stages, as a rule, presuppose the utilization of many methodological materials and instructions, and they make it possible to check for their completeness and the lack of contradictions.

4. The parameters of the new products change and again all calculations are conducted in keeping with points 2 and 3.

5. An analysis is conducted on the behavior of all indicators of the activity at the enterprise, and from the standpoint of the economic object one evaluates its interest in producing the new products.

6. Changes, additions, refinements and so forth are made either in the initial designs (another branch; conducting organizational and technical measures; expanding the planning horizon; increasing the number of parameters and bringing their values closer to the given ones for a certain real enterprise and so forth) or in the algorithms for calculating individual indicators in keeping with the planned changes in the conditions for management; or other rules are used for selecting the best variants. With the help of such variations one finds the configuration of the economic mechanism which makes it possible to coordinate the interests of the national economy and the associations better than the existing one does.

7. The selected designs are discussed with managers and specialists of the departments and enterprises.

One of the forms of evaluating the feasibility and effectiveness of changes in the economic mechanism uses imitation games with the participation of workers from the central management agencies, ministries and production associations.

Let us note that the participation of experts is extremely useful in the initial stage as well. Subsequently various economic experiments are possible at real enterprises and it is also possible to introduce them into practice.

Let us illustrate this method. Certain stages we shall give in outline form and others in a form which makes it possible to utilize the material of the article or independent imitation calculations.

The design of a conventional enterprise. Using data from the statistical annual "The USSR National Economy," it is easy to determine the generalizing indicators of the "average" enterprise of any branch: the overall volume of products in existing wholesale prices, the average annual value of fixed production capital and normed circulating capital, expenditures on production and profit. On the basis of their proportion we find the values of material expenditures, wages, amortization and so forth. Then it is possible to select a fairly realistic example of the base item, which is among the means of labor for long-term application (see Table 1). In Tables 1 and 2 as a measurement in monetary terms we use "thousands of rubles," R --normative of probability compared to the production cost minus direct material expenditures (0.3); N_s --normative of deductions for social security (14 percent), K_z --ratio between wages of industrial production personnel for service and administration and wages of production workers (1.29).

After this one calculates the basic technical and economic indicators under the condition that the game enterprise produces only one base item (see variant 1 in Table 2).

Table 1--Calculation of Wholesale Prices and Normatives of Net Output

Indicators	Designation	Base Item	New Items		
			2	3	4
Direct material expenditures	M	5.8	4.64	4.64	5.8
Production cost minus direct material expenditures	S_m	4.2	3.36	3.36	4.2
Production cost of a unit of output ($M + S_m$)	S	10.0	8.0	8.0	10.0
Labor-intensiveness of manufacture, thousands of norm-hours	A	1.0	0.8	0.8	1.0
Normative profit ($R \times S_m$)	P_n	1.26	1.01	1.01	1.26
Limit price ($S + P_n$)	Ts_1	--	9.01	9.01	11.26
Coefficient of increase in labor productivity of the new item as compared to the base item	K	1.0	1.0	1.5	2.0
Expenditures of producer	Z_p	--	11.26	16.89	22.52
Savings for consumer on wages and deductions for social security	E_z	--	0	7.69	15.38
Savings of consumer on amortization deductions for capital repair	E_p	--	0.32	1.13	1.61
Annual economic effect from the production and utilization of new products	E	0	2.57	16.70	28.25

Table 1 (Cont'd)

Indicators	Designation	Base	New Items		
		Item	2	3	4
Ratio for checking the economic substantiation of the limit price					
Wholesale price					
(Ts less than or equal to Ts ₁)	O	--	0.78	0.36	0.3
Ratio between effect and price	Ts	11.26	11.26	11.26	11.26
Incentive increments to price	YeS	0	0.23	1.48	2.51
Total	N	0	1.52	2.02	1.58
Including: for effectiveness	N _k		0.52	1.04	1.58
for savings from reducing material and labor expenditures	N _e		1.0	1.0	0
Wages of production workers	Z _r	0.87	0.7	0.7	0.87
Overall sum of wages in price					
[Z _r (1 + K _z)]	Z	2.0	1.6	1.6	2.0
Normative net output					
[Z(1 + N _c /100) + P _n]	NChP	3.54	3.54	3.54	3.54
Profit included in price (Ts - S)	P	1.26	3.26	3.26	1.26

Table 2--Calculation of Technical and Economic Indicators

Indicators	Variants of Plans			
	1, base	2	3	4
Annual output, units				
Base item	1800	1620	1620	1620
New item according to corresponding variant	0	225	225	180
Commodity output	20268	20775	20775	20268
Normative net output	6372	6531	6531	6372
Increase in NChP compared to base, %	100	102.5	102.5	100
Portion of products of the highest quality category, %				
in commercial output	0	12.2	12.2	10.0
in NChP	0	12.2	12.2	10.0
Annual economic effect from production and utilization of the new products				
In wholesale prices	0	578	3758	5085
For normative net output	0	182	1181	1599
Increase in NChP taking into account the proportion of the effect, %	100	104.0	113.0	114.4
Number of industrial personnel	1677	1677	1677	1677
Wage fund for industrial personnel according to normative	3600	3650	3763	3781
Production cost of commercial output	1800	18057	18186	18206
Increase (+) reduction (-) of expenditures per 1 ruble of commercial output as compared to the base year, %	0	-2.13	-1.43	1.15

Table 2 (Cont'd)

Indicators	Variants of Plans			
	1, base	2	3	4
Normative for circulating capital	4190	4195	4207	4209
Profit from sales	2268	2677	2559	2080
Material incentive fund	360	398	386	339
Fund for social-cultural measures and housing construction	126	136	159	162
Fund for the development of production from profit (according to the normative 7.7%)	175	206	197	160
Deductions from profit into the budget (calculated profit minus profit for the needs of the enterprise)	157	452	326	-39
Sum of incentive increments to wholesale prices, total	0	239	318	199
Including:				
Into the material incentive fund	0	129	165	109
Into the fund for social-cultural measures and housing construction	0	44	68	45
Deductions into the economic incentive fund from profit and incentive increments to prices	666	980	1060	861
The overall expected wage fund	3960	4177	4314	4319
The increase in average wages of one worker as compared to the base year, %:				
From the wage fund	100.0	101.4	104.5	105.0
From the wage fund and the material incentive fund taking into account an increase in the material incentive fund	100.0	102.2	104.8	104.0
From incentive increments to prices	100.0	105.5	109.0	109.1
The fund for social and cultural measures and housing construction from profit and incentive increments to prices	126	180	227	211

A couple of clarifications because of the different significance of several aspects of the existing methods⁵ (for initial data and designations see Table 1):

$$Z_p(j) = Ts(1) \times K(j) \frac{1}{(T(1) + Ye_n)} : \frac{1}{(T(j) + Ye_n)},$$

where

Ye_n --normative coefficient of effectiveness (0.15); j --index of the new item (the base index--"1"); $Ts(1) = 11.26$ (thousand rubles);

$$E_z(j) = Z_1(K(j) - 1) : \frac{1}{(T(j) + Ye_n)},$$

where Z_1 --annual sum of wages and deductions for social security of workers running one machine (based on average monthly earnings of one worker in industry in 1982 of 196.8 rubles and the conditions of two-shift work
 $Z_1 = 0.1968 \times 12 \times 2 \times 1.14 = 5.3845$ (thousand rubles);

$$E_a(j) = (K(j) \times Ts(1) = Ts_1(j)) \times N_a : \frac{1}{(T(j) + Ye_n)},$$

where N_a --normative of amortization deductions for capital repair (for the example we used 0.05);

$$E(j) = Z_p(j) + E_z(j) + E_a(j) - Ts_1(j);$$

$$O(j) = \frac{Tsl(j)}{Z_p(j) + [E_z(j) + E_a(j)] \times 0.9}.$$

The wholesale price is considered substantiated if $O(j)$ is less than or equal to 0.85. In keeping with the instructions of the methods for determining wholesale prices for variants of new products 2 and 3, which characterize the reduction of labor-intensiveness and material-intensiveness as compared to the base item, the wholesale prices, normatives of net output and profit included in the price can be established at the same level as for the base item. This is what was done in the example that was considered.

Many "whys" already appear here. Why in these methods is the proportion of deductions from the balance value for complete restoration for product $jD(j)$ equal to $1/T(j)$ while in certain branch methods $D(j) = Ye_n / [(1 + Ye_n^t(j)) - 1]$?

If when $T(j) = 5$ in the first case $D(j) = 0.2$, in the second case it equals 0.148. And as a result according to the second methods the values $E_z(j)$ and $E_a(j)$ increase by 17.4 percent. Or why is it necessary to have a second incentive increment for savings from the reduction of material and labor expenditures if this savings is taken into account through the incentive increments for effectiveness? For as a result the new item according to variant 4 has an incentive increment of 22 percent less than the item according to variant 3 although it provides for a greater effect both per unit of output (70 percent) and for the entire possible output (34.3 percent, see Table 2).

And if we construct a couple of more variants of the new product one can see that the behavior of the incentive increment for effectiveness is extremely idiosyncratic: with an increase in the effect as a result of reducing material and labor expenditures it does not increase, as it would seem at first glance when studying the standard scale, but it decreases, reaching a minimum when $YeS = 0.77$. This reduction amounts to no more and no less than 9 percent as compared to the value of the increment at the limit of the allowable effect (when $O = 0.85$ and $YeS = 0.234$).

With the help of the simple model that is being considered it is possible to "play through" a number of other suggestions that have been expressed in the press: to differentiate the normatives of profitability according to groups of profit so that increased normatives can be established for the most

effective,⁶ to make the amount of incentive increments more closely dependent on the effect with the help of changes in the scales,⁷ and so forth. At the same time these imitation experiments show, in the first place, that for better substantiation of the conclusions it is necessary to analyze not an individual "block" but the entire system of indicators of the activity of the enterprise and, in the second place, we need not partial changes, but deeper transformations in the system of management, some of which will be tested during the course of large-scale economic experiments.

We are developing variants of plans. We shall assume that in the planned year 10 percent of the base items are removed from production, and in their place they are beginning to produce new ones in keeping with one of the designed variants. Here the labor resources and equipment remain at the level of the base year. The methods for developing the technical and industrial financial plan,⁸ the devices for its algorithmization⁹ and instructions concerning the calculation of indicators under the conditions of the economic experiment make it possible to conduct an "all-around" annual calculation of all sections of the enterprise: from the plan for production and sales of products to the financial plan. With respect to conditions of the experiment in the Ministry of the Electrical Equipment Industry these indicators are presented in Table 2--in the limited volume allowed by the framework of the article which produces possibilities for a content interpretation. In this table, just as before, all indicators in value measurements are given in thousands of rubles.

In the calculations we made the following assumptions: 1) the proportion of the effect from the production and utilization of products of the highest quality category was equal to 0.5; 2) the normative of increase in wages for industrial personnel for each percentage point of increase in normative net output taking into account the proportion of the effect was equal to 0.35; 3) the expected savings on the wage fund as compared to the normative is spent for increased additional payments to wage rates for highly skilled workers and other permitted additional payments, and this increase in payments is taken into account in the production cost; 4) in the planned year there are no essential changes in the conditions for supply, production and sales. As a result of this the normatives for production supplies changes in proportion to material expenditures and other elements of circulating capital--in proportion to the production cost; 5) the normative of additional increase (reduction) of deductions into the material incentive fund is 5 percent of the sum of the fund according to the plan for the base year for each percentage point of reduction (increase) in expenditures per 1 ruble of commercial output as compared to the base year; 6) for the fund for social and cultural measures and housing constructive the normative of increase is equal to 2 percent (of this sum of the fund according to the plan for the base year for each percentage point of increase in labor productivity calculated according to the normative net output, taking into account the proportion of the economic effect).

Are interests coordinated? With all of the differences in the criteria that express the interests of the national economy, preference should apparently be given to variant 4, in which one can see a sharp increase in the total economic effect with resources that are unchanged in comparison to the base level. After this comes variant 3, and then 2.

Let us now take a look at the planning variants from the standpoint of the managers of the enterprise. One should apparently agree that variant 4 does not have so many advantages over variant 3. And such important established indicators as expenditures per 1 ruble of commodity output and profit are even less than in the base year. Thus it will be necessary to find an additional 39,000 rubles (perhaps through reducing reductions into the economic incentive funds) for contributions, payments for funds and interest on bank credit in the planned amounts. As for the influence of incentive increments to wholesale prices it is in opposition to the growth of the economic effect (one can feel the effect of the aforementioned "idiosyncratic" behavior of these increments as a result of the insufficiently correct methods for calculating them). As a result, there are weighty justifications for selecting variant 2 as the more "reliable" for the enterprise. But the interests of the national economy suffered then. The sum of the effect decreases by 26 percent.

If we look at the situation under consideration proceeding from the conditions of the economic experiment in the Ministry of Heavy Machine Building, where labor productivity is calculated simply according to the normative net output, that is, without taking into account the proportion of the economic effect, then variant 4 seems to be the worst one from the standpoint of established and fund-forming indicators. Further, since the planned wage fund for industrial production personnel will be determined according to the normative with respect to the entire sum of normative net output, then for any normative sums of the wage funds in variants 2 and 3 will coincide. The value of the production cost, expenditures per ruble of commercial output, profit and other derived indicators will also be the same. The only thing that will make it possible to solve the problem in favor of variant 3 as the more effective one is the increase in deductions into the economic incentive fund as a result of the greater sum of incentive increments to wholesale prices.

"But wait!"--the reader will object. After all, the model under consideration suffers from imprecision in the reflection of the real process: it does not take into account expenditures on preparation and assimilation of the production of new products which are subject to reimbursement from money from the unified fund for the development of science and technology. And if this is taken into account then not only the production cost is increased by this sum, but so are other indicators (proceeding from existing normatives of profitability for output), namely: commercial output, normative net output and profit. And this, in turn, is reflected in other technical and economic indicators. And therefore the greater the sum of expenditures on the preparation and assimilation of production, the greater will be the sum of the normative net output and the rate of its growth, and this means also the planned wage fund. As for the economic effect....

Here the discussion will inevitably come around to the question of how justified is Point 3.1.3 of the methods for determining wholesale prices, which rejects derived expenditures when calculating the economic effect per unit of new output and bases the calculation on wholesale prices without taking into account the expenditures involved in the creation and assimilation of new products. In economic literature they have repeatedly shown the incorrectness of such an approach but, as we see, the problem of developing a

substantiated method for determining the economic effectiveness of economic measures is becoming more and more crucial: for the role of the indicator of the economic effect in the system of planning indicators and economic stimuli is increasing. Any method should undergo testing for feasibility. An incorrect determination of the effect under the condition of the economic experiment in the Ministry of the Electrical Equipment Industry will lead to a distortion of the growth of labor productivity and the many other indicators right down to the average wages. As a result there can be a disbalance between incomes and the commodity to cover them even in this "ideal" case.

FSA for management systems. "Functional Cost Analysis is a Method of Economy and Thriftiness," the selection of materials under this heading published in EKO (No 6, 1981) touches on the idea of applying FSA to management systems. Are all the planning indicators established for the enterprises undoubtedly necessary? Is there no unnecessary duplication in the system of economic incentives? What will happen if we try (within the limits dictated by the interests of the national economy) to reduce the various guidelines and instructions? Perhaps the saving will come from more than just printing costs?

Let us return to our conventional enterprise and assume that the expenditures on the preparation and assimilation of production have already been taken into account in the production cost or that we have "skipped over" the years with increased expenditures and are considering series output of the new product. This excludes from consideration questions of making reimbursement for such expenditures (to be sure, the unclear aspects indicated above will not disappear because of this) and will help to consider the interaction with other planning indicators and economic incentives.

First of all attention is drawn to the numerous channels through which the reduction of the material-intensiveness and labor-intensiveness of the new items as compared to the base ones can be influenced: 1) points 3.1.2, 3.9, 3.12 and 5.3 of the Methods for Determining Wholesale Prices and Normatives of Net Output, in keeping with which the wholesale prices, normatives of net output and profit included in the price can be established for new items at the level of the items that are replaced; 2) the formula for calculating the annual economic effect from the production and utilization of the new products, and its calculation when figuring out the growth of the normative net output taking into account the proportion of the effect and the growth of labor productivity. And the planned wage fund and fund for social-cultural measures and housing construction depend on these latter indicators; 3) incentive increments for effectiveness; 4) incentive increments for economizing on material and labor expenditures; 5) the proportion of products of the highest quality category, which will decrease with an expansion of the production of spare parts and products that are not subject to certification but nonetheless can exert an influence on the amount of the bonuses for managers of the enterprise. Thus it turns out that, as they say, "too many cooks spoil the broth" (it is also necessary to take into account the indirect influence through other indicators such as profit and the material incentive fund). But one does not find the proper coordination in the interaction of various economic levers, which is easy to see from the calculations presented above.

If one rejects the first channel of incentives--through "refining" prices, normative net output and profit, the behavior of all the indicators will be corrected: the sums of commodity and normative net output and also the proportion of products of the highest quality category will correspond to the base values, the increase in labor productivity and the normative net output (taking into account the share of the effect) according to variants 2 and 3 will be 101.45 and 110.21 percent, respectively, the sums of the planned wage fund for these two variants will be 3,618 and 3,728, the production cost of the commercial output--18,018 and 18,128, and profit from sales--2,250 and 2,140. The increase in expenditures per 1 ruble of commercial output as a result of the increased wage fund under variant 2 is equal to 0.1 percent, and variant 3--0.71 percent.

In the system under consideration it is hardly necessary to have the indicator of the proportion of products of the highest quality category since its function is performed successfully by a more precise indicator--the increase in labor productivity, taking into account the share of the effect. Since expenditures per 1 ruble of commercial output will increase when there is a savings on the wage fund as compared to the normative and when this savings is used for additional incentives, it is necessary either to refine the methods for calculating this fund-forming indicator for planning the material incentive fund or to combine the wage fund and the material incentive fund into a unified fund as is being more and more frequently suggested in the literature.

Difficult problems also arise when attempting to utilize all the sources of incentives: there are several of them but when issuing funds for wages the Gosbank division always compares the rate of increase in labor productivity and the average wages. Under the conditions of the experiment in the Ministry of the Electrical Equipment Industry the increase in the average earnings in variant 2 cannot be greater than 104 percent, although, taking into account the incentive increments it could amount to 105.5 percent. And for the conditions of the Ministry of Heavy Machine Building the permissible growth of the average wages was only 102.5 percent. But if the normatives for new products can be less than for those replaced, in the example under consideration the increase in average wages becomes generally problematic because of such a limitation.

FOOTNOTES

1. See for conditions of the 11th Five-Year Plan the collection of documents "Sovrechenstvovaniye khozyaystvennogo mekhanizma" [Improvement of the Economic Mechanism], Moscow, "Pravda", 1982. The methodological materials for the economic mechanism under the 12th Five-Year Plan, developed during the course of large-scale experiments, were published in EKONOMICHESKAYA GAZETA, 1984, No 3-8, 10, 14-15.
2. "Sovrechenstvovaniye khozyaystvennogo mekhanizma," collection of documents, Moscow, "Pravda," pp 285-288.

3. EKONOMICHESKAYA GAZETA No 15, 1984, p 17.
4. See, for example, Bagrinovskiy, K. A., Movshovich, S. M., Ovsienko, Yu. V., and Petrakov, N. Ya., "Methodological Problems of Imitation Modeling of the Economic Mechanism," EKONOMIKA I MATEMATICHESKIYE METODY, Vol XVI, Issue 5, 1980, pp 837-838.
5. "The Methods (Basic Provisions) for Determining the Economic Effectiveness of the Utilization of New Technical Equipment, Inventions and Efficiency Proposals in the National Economy," EKONOMICHESKAYA GAZETA, No 10, 1977; "Methods for Determining Wholesale Prices and Normatives of Net Output for New Machines, Equipment and Instruments for Production and Technical Purposes," EKONOMICHESKAYA GAZETA, No 6, 1983.
6. Lebedinskas, A. A., "Plan, Tsena i NChP" [The Plan, the Price and the Normative Net Output], Moscow, "Ekonomika," 1983, p 195.
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8. "Standard Methods for Developing the Technical, Industrial and Financial Plan of the Production Association (Combine) and Enterprise," Moscow, "Ekonomika," 1979.
9. Chagin, M. V., "Kompleks delovykh igr po finansirovaniyu i kreditovaniyu promyshlennosti. Uchebnoye posobiye" [The Complex of Business Gain for Finance and Credit in Industry. Training Aid], Novosibirsk, NGU, 1981, pp 64-85.

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DECREE ON ALCOHOLISM DISCUSSED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 1, Jan 86 pp 164-176

[Article by Aleksandr Petrov: "A Return to Life"]

[Text] A selection of articles concerning the social and therapeutic aspects of alcoholism and the fight against it was printed in the 9th and 10th issues of our magazine for 1985. They discussed the concrete ways of implementing the decree of the CPSU Central Committee, "On Measures for Overcoming Drunkenness and Alcoholism" and discussed advanced experience. Today we are continuing the discussion of this important subject.

Concerning an effective method of treating chronic alcoholism developed at the Feodosiya Drug Abuse Center.

One can boldly assert that not one of the most terrible epidemics has caused mankind so much trouble and sorrow as alcoholism. According to data of the World Health Organization (WHO) it annually kills about 6 million people--this is more than die from cancer. Other consequences of this terrible scourge of our time also present a serious danger to the society: the rapid increase in the number of children born with defects, psychological diseases, crimes and broken families. The economy also sustains immense losses because of drunkenness.

To halt the spread of alcoholism and in the future to completely eradicate it is one of the global tasks facing the world today. Along with other sciences, medicine is engaged in a search for ways of resolving it.

At the present time our country has created a principally new method of treating chronic alcoholism. Its author--the Feodosiya psychotherapist, the leader of the republic psychotherapeutic center of the Ukrainian SSR Ministry of Public Health, an honored physician of the republic, A. R. Dovzhenko--is achieving truly remarkable results: from 82 to 93 percent of those patients he has treated (by a conclusion of the Kharkov Scientific Research Institute of Neurology and Psychology) stop drinking and become fully productive people. The most unusual think in this method is the individual's rebirth takes place

literally before your eyes--in one psychotherapeutic session. There is nothing like this in world practice.

In addition to its great effectiveness, Dovzhenko's method is also very economical: instead of 2-4-month periods of treatment in a center, which costs the state a good deal, a Feodosiya psychotherapist rids his patients of this illness without hospitalizing them and in only a couple of days (including the preparatory stage). Also significant is the fact that there is no need to use any medications.

"Toes and heels together! Let your hands lie lightly on your knees! Look at the bridge of my nose!"

With the steady powerful gaze of his sharp eyes the psychotherapist momentarily takes in all the faces of the people sitting before him in anxious expectation.

"Attention! The session is beginning!"

And from that moment the audience is under the power of one individual....

A large confident man radiating health and vital force, he sat on an elevated place with his "hypnotist's sceptre" in his hand and in absolute silence he distinctly recited his impassioned monologue. I believe that if it were presented on paper it would hardly make an impression on anyone--it would be a simple lecture on the harms of alcohol. But in this case the main thing was not what he said, but how he said it. Before the patients stood a powerful preacher, not only impassioned, but also "all-powerful," subjecting them to his will. There were no more than about 50 "parishioners." From the sidelines I could have a full appreciation of the mastery, sometimes the true artistry, with which the psychotherapist "exorcised the devil"--which had led them to DT's--from the people sitting in front of him. His voice and intonation changed: harshly, mercilessly he discussed the terrible consequences of alcoholism, its influence on the psyche of the individual and his posterity; sympathetically-softly he discussed the sufferings of loved ones; convincingly--he discussed the treatment, man's possibilities and the hidden reserves of man's organism.

Here it seems to me to be appropriate to give an excerpt from the conclusion of the Kharkov Scientific Research Institute of Neurology and Psychiatry which, on an assignment from the Ukrainian SSR Ministry of Public Health, studied the practice of the Feodosiya therapist:

"The semantic nucleus of Dovzhenko's method is the formula for suggestion which consists in that it is 'not your' (the patient's) but "my" (the psychotherapist's) will that will rid you of the disease. This differs in principle from the traditional psychotherapeutic directions in treating alcoholism--the utilization of the patient's own will to overcome the disease. The Dovzhenko method is also distinguished from the others by the fact that the patient is given, on the one hand, freedom to select the length of his period of complete sobriety and, on the other, the need for strict observance of the conditions that have been set down."

"As experience shows," Aleksandr Romanovich explained to me after the session, "when a patient ceases to direct his own weak will in the battle against the desire to drink, believing that this battle has already been won by my will, the very desire to drink atrophies, and any attraction to alcohol gradually disappears. And the development of confidence in the patient that he can stop his remission at any time, by going to the physician and requesting deprogramming, maintains in him a sense of freedom and reduces the strength of the subjective-attractive experiences and sensations, especially in the initial period of abstinence."

Well, finally, the 2-hour group session has come to an end. One can take a breather, but who wants to? Certainly not Dovzhenko, who was as cheerful as before and with a smile looked around at his patients. And they were coming to their senses slowly--stretching their limbs which had gone to sleep and looking in various directions as if trying to figure out what had happened to them. But the culmination was still ahead. Within 15 minutes after they themselves (having consulted with their loved ones) had determined their own time periods for abstinence, began the final stage of treatment--individual reception in the "programming room."

"Well, my dear, what did you think?" Aleksandr Romanovich tenderly addressed a young blond woman from Minsk who had ended up in the center because of her young sons who in a letter to Dovzhenko asked that he help their dear mama in such a way that he could not refuse and permitted her to come as an exceptional case without waiting her turn."

"For the rest of my life!" she answered confidently, sitting down in the armchair.

"That's smart! Good girl!" Dovzhenko joyously exclaimed. Going up to the woman he firmly gripped her head with his hands. "Close your eyes...."

Is it possible for the "alcohol-ridden" organism to painlessly change over to a nonalcoholic existence? Can this be done painlessly?

"It is amazing, but true!" My older friend, a journalist who had been treated by Dovzhenko, assured me. "Both at first and even now I do not feel any indisposition. My organism has 'accepted' the sober life as it should. I recall that a couple of days after the session I went on a business trip. My fellow travelers were cheerful and they had barely sat down before they took their bottles out of their briefcases--and for 2 days they did not 'dry out.' I drank with them, but...soda water and--without any self-will. No, I did not experience any aversion to liquor; but there was attraction to it either--there was just some kind of surprising indifference...."

In Feodosiya itself I had occasion to meet with a person whom Dovzhenko had treated more than a quarter of a century ago. Since that time he had not taken a drink, although before that he could not go a day without a bottle and his wife had decided to leave him.

"Aleksandr Romanovich saved me at that time," I was told by this native Feodosian, the father of two adult sons who do not drink either, who were born during the sober time of his life, "and it was not easy for me after I 'took the pledge'--friends and some of my comrades at work did not approve of my 'deviation' and tried more than once to return me to a 'full' life. But Dovzhenko turned out to be stronger. I did not break. I went back to school and completed the tekhnikum...."

But one more question would not leave me in peace. Would Dovzhenko's patients not be oppressed by the awareness that a mine-"code" has been placed in them, which is capable at any moment of sending you through the other world if ever you were to disobey? Does this not injure the psyche, poisoning the sober existence which is quite remarkable in all other respects?

"By no means!" Aleksandr Romanovich assured me. "Fear as a psychotherapeutic device has never led a patient to such consequences. On the contrary it mobilizes him to change over to complete sobriety. The moral principle of medicine--"not to frighten," to calm the patient--is counterindicated when treating chronic alcoholism since success here is possible only when the person's survival instinct is heightened, when he has been brought into a stressful condition. Only then can the suggestion become a real force. Incidentally, courses of sensitizing treatment for alcoholism are also based on the 'fear' principle: surgical implantation of Eksperal and Radoter preparations, the introduction of abriphide, and taking Teturam internally. And practice confirms that our patients not only do not become depressed in expectation of something that cannot be changed but, on the contrary, they literally flourish, sometimes discovering exceptional capabilities and excellent qualities.

Some Lines From Letters

Dear Aleksandr Romanovich!

I have not put alcohol in my mouth for 5 years now. I am looking at life through sober eyes. What pleasure and happiness! I have discovered quite different needs and have radically changed my views on life. There is happiness and abundance in my family, honor and respect at work. My wife sometimes jokes: I want to argue but there is nothing to argue about. Remember I brought my brother and a friend to you? Both of them are sober.

Ch., the City of Izobilnyy

Since my session with Aleksandr Romanovich for 5 years now I have not tasted alcohol and I am deeply convinced that I will never taste it again. No stressful situations (and during this period I have had to bury two of the closest people to me--a 17-year-old daughter and a sister) can lead me back to my past. Truth can be recognized in comparison, and there is something to be compared.

V. N., form worker, Kiev

Now I have joy. What I did have...is terrible to recall. It seemed destined to happen that both of my daughters would have alcoholics for husbands, and these were second-generation alcoholics--their fathers also drank heavily. First we suffered over our elder son-in-law. He drank almost every day and he was violent when drunk, the children feared him, the older son would not call him father. Always flabby, sloppy, recently even his face had become distorted. After the session with Dovzhenko a miracle took place. He has not drunk for 6 years now. His face straightened out and he became attractive. He works well and they have made him a brigade leader at the plant. He helps his wife at home. We had just straightened out and then then second daughter married--and the same story. So many tears were shed until we took him to Dovzhenko. Aleksandr Romanovich saved us again this time. And the younger son-in-law has now become a good person. He stays home, he is concerned about his wife, he bathes the baby himself, he likes to cook very much and is glad to work in the garden and take care of the rabbits. A low bow to the dear doctor--he saved two families.

D. A., Zhdanov

Aleksandr Romanovich saved my husband from death, and also some of our relatives and acquaintances (a total of 24). All of them are sober now, they are working well, and many of them have become shock workers.

V. N., Dnepropetrovsk

Thousands of letters of gratitude like these from former alcoholics, their relatives and from labor collectives have come to the Feodosiya Drug Abuse Center, the editorial offices of the central newspapers and public health agencies. Behind them lies thousands of destinies that have been straightened out and families that have been restored. So, the reader will ask, have we really found a panacea for treating chronic alcoholism?

I should like very much to answer in the affirmative and without any "no's." But there is one, one "no" and a significant one. The person who is enslaved by alcohol must want very much to break into freedom. This is a mandatory condition for the method.

"I can help only those," explains Aleskandr Romanovich, who sincerely desire to be cured. "Those who have come to me by their own will and not under pressure from relatives or friends. This is the main thing. Additionally, I make one more demand of my patients--before the session they must go on a 15-20-day "fast": not consume a single gram of alcohol. This amount of time is necessary for the organism to be purified from alcohol. Hypnosis and psychotherapy cannot exert an influence on a nervous system that has been slowed down. On the other hand, such a 'lengthy' period of abstinence clears the mind and prepares the soil on which the will that has been suppressed by wine will be restored. For alcoholism is a disease caused by a lack of will power. I return this will power to the person. If these two conditions are met I guarantee that my ward will be returned to health, regardless of the stage of the illness."

Regardless of the stage.... Is this not too categorical? Practice suggests that it is not. And this is emphasized in the methodological recommendations from the USSR Ministry of Public Health, "The Organization of Stress Psychotherapy of Patients With Alcoholism Under Outpatient Conditions" which were drawn up on the basis of the experience of the Feodosiya Drug Abuse Center:

"The duration and nature of the abuse of alcoholic beverages, the stage of the disease, the number of relapses, and the quality of preceding therapeutic remissions are not decisive indicators when selecting patients for treatment...."

Indeed, the majority of Dovzhenko's patients are seriously ill and the ordinary methods applied in drug abuse centers, psychiatric hospitals and treatment points have not helped them. Thus Sergey N. had managed to visit these institutions 58 times during the 36 years of his life but he did not stop drinking until after his session with Dovzhenko.

"Our village is small, with about 200 families, and 15 people have been treated by Dovzhenko," residents of one of the rayons of Voronezh Oblast write in their collective letter. "Several years have passed since then, and not a single one of them has started to drink. And before Feodosiya they all were treated repeatedly in psychiatric outpatient clinics--but not a single one of them became a person."

"But still, Aleksandr Romanovich, there are cases when even you cannot help, judging from the statistics...."

"Unfortunately, but this is not a matter of the perfection of the method. The relapses, as a rule, come mainly to violators of my requirements: they have either drunk before the session or they have come to me in order to get their loved ones to stop nagging them. In individual cases the relapses come to people who have fallen into difficult stressful situations. There are also provocations from 'friends' who put wine in their juice."

This has been confirmed by the research of the Kharkov workers, who wrote in their conclusion of their investigation of Dovzhenko's method.

"In the development of relapses a decisive role is played not by clinical, but by the social and personal characteristics of the patients. The immediate causes of the relapses were family situations: 'I fought with my wife,' 'I wanted to die and therefore I drank'.... None of the patients who had resumed alcohol abuse said that the immediate cause of their relapse was a desire for alcohol. They all emphasized their complete indifference to alcohol after the treatment by the A. R. Dovzhenko method."

Last year for his "Method of Treating Chronic Alcoholism" Aleksandr Romanovich was awarded the author's certificate--this confirmed the originality of its method.

"But!" the director of the Kharkov Scientific Research Institute of Neurology and Psychiatry, Professor V. P. Voloshin explained to me. "I wish to draw

your attention immediately to one most important circumstance: In the Dovzhenko method a decisive role is played by his extraordinary personality, his innate talent as a psychotherapist. And this means that in spite of the external simplicity of the treatment, far from every physician can master the method. One can study it in the most careful way and literally copy all of Aleksandr Romanovich's actions and...achieve nothing."

Yes, the human factor is the main thing in the method of the Feodosiya psychotherapist. From beginning to end I observed how in practically a moment Dovzhenko manages to establish contact with his patients, even at the first, familiarization meeting, which is conducted with each one of them individually face to face. His benevolence, passion and confidence in his abilities to bring the patient out of his misery had an irresistible effect on these lost people and lit in their eyes a still timid fire of hope. "If a person does not feel better from his first meeting with the physician," Aleksandr Romanovich quoted to me the words of the outstanding Russian psychotherapist V. M. Bekhterev. "I consider myself to be a student of the great scientist and I try to follow his ordinances."

A. R. Dovzhenko's path to recognition was long and thorny. Even as a student in the therapy department of the Crimean Medical Institute (almost a half-century ago) he discovered his unusual hypnotic gifts, which he successfully demonstrated on his fellow students. But he devoted himself seriously to the study of hypnosis, psychotherapy and popular medicine when he began to work in the specialty of a dermatologist. The young physician devoted all of his free time to these sciences. He became thoroughly familiar with Eastern medicine. He did not miss an opportunity to learn psychotherapy and reflex therapy in courses. And in parallel he applied the knowledge he had acquired in practice. He began to treat the most varied illnesses. These included serious skin diseases, stuttering, various kinds of neuroses, epilepsy, enuresis, diseases of the digestive organs...and more and more frequently he managed to help the patient in cases where many other medical means had produced no effect.

Then at the end of the 1940's he developed his own method of treating chronic alcoholism and began to apply it for the first time. Of course it was somewhat different from what it is now that almost 40 years of practice have refined it, but even then the results were impressive. Just one session and a terrible drunk was transformed into a confirmed sober person. Incidentally, at the same time the physician would break the tobacco habit for those who desired this.

Having been convinced of the effectiveness of the method, A. R. Dovzhenko tried to obtain official permission for it so as to devote all of his time to his calling. But, as is frequently the case, the nontraditional approach encountered a great deal of resistance. The former chief of the Crimean oblast public health division, having declared Dovzhenko a charlatan, managed for many years to cut him off and force the unique method underground.

But, of course, he was not able to stop the rumors about the amazing doctor from Feodosiya, which were spreading more and more extensively throughout the country, and each year the influx of patients to Dovzhenko increased. And the

time came when quantity inevitably changed into quality. The Ukrainian minister of public health, A. Ye. Romanenko, having heard about the Feodosian miracles, had them investigated. He entrusted this to the Kharkov Scientific Research Institute of Neurology and Psychiatry in 1980. The reader is familiar with their conclusions. I would simply like to draw your attention to the fact that the Ukrainian scientists were able to take an unprejudiced and objective approach to the study of the method of "independent" psychotherapy. Yes, yes, of course "scientists cannot do anything else," "science will not stand"--all that is true but how many of us still have occasion to see cases where "scientists can do something else" and "science does allow." In a word, the fact that in 1980 at the polyclinic for sailors in Feodosiya, by the order of the minister, a drug abuse psychotherapeutic office was opened, which after 2 years was given the status of a republic center of the Ukrainian SSR Ministry of Public Health, is largely to the credit of these Kharkov scientists.

Thus Dovzhenko received official recognition. Republic. For the union ministry of health, as before, ignored the Feodosian experience as somewhat incomprehensible, incredibly effective and therefore--doubtful. Two more years were to pass and several articles were to appear in the central press in support of the Dovzhenko method before the USSR Ministry of Public Health was finally forced to recognize it. And certain measures were taken to introduce it into medical practice.

Today this question--the dissemination of the Feodosian experience--is a major one, and it must be resolved immediately. We do mean immediately. And it is not just that Aleksandr Romanovich with all of his self-sacrifice and I would say fanatical attitude toward his work is simply not physically able by himself to help all those millions of people who are suffering in our country. But it is also that he is 67 years old. You yourself understand that this is a significant age. And although Dovzhenko continues to handle successfully the immense load which he has voluntarily taken on thanks to his strong body and his excellent physical conditioning (literally up until recently he has not changed his habit of swimming year-round in the sea, being the permanent chairman of the section of the Feodosian Sea Swimmers), still age is age and such lengthy work cannot but be reflected in exhaustion. Moreover he is more and more frequently aware of an old wound caused by a bandit immediately after the war. And right after his regular session he goes for a minimum of three nights without sleep. Briefly, it is necessary to have followers of Dovzhenko who will be able to preserve and carry on the rich and unique experience he has accumulated. To be sure, there is no shortage of people who desire to.

Thus we are speaking about the need to create a Dovzhenko school. But is this possible? Is the method of the Feodosian psychotherapist capable of existing without him himself? Or as Professor Valoshin asserts, far from every physician is capable of mastering this method since the personal factor plays a most important role in it. But Aleksandr Romanovich himself, while agreeing with the opinion of the director of the Kharkov Scientific Research Institute of Neurology and Psychology, still has no doubt that his method of treatment can be reproduced.

"Our land has always been rich in talent and strong personalities, he asserts. Among physicians it is possible to find many people who have a hypnotic influence and psychotherapeutic capabilities and who have practical work experience in drug abuse. If the person is also boundlessly devoted to his duty, loves patients, is interested in the theater and himself has a certain theatrical gift, then with a desire and a sense of purpose he is quite capable of mastering our method."

Ukrainian scientists support Dovzhenko--both Professor P. V. Valoshin and the chairman of the scientific council of the Ukrainian SSR Ministry of Public Health, Professor O. A. Pyatak. In their opinion it is possible and necessary to teach the Dovzhenko method. All they need is a careful selection of candidates, for otherwise it would be easy to ruin things and compromise the idea.

In keeping with an order of the USSR Ministry of Public Health this training has now been started and has already begun to "graduate" the first students, who have taken a 4-month course in Feodosiya and have begun independent practice by the Dovzhenko method. Of course, it is still premature to speak about results, but it is exactly the right time to talk about the problems which the followers of Aleksandr Romanovich have managed to deal with.

First, their status was not defined in any way, there are no standard provisions concerning the drug abuse psychotherapeutic center or the office--this is not a matter of names. It was completely unclear who should have jurisdiction over them, to which service they belonged, what their rights and responsibilities are, and how they should maintain their ties with the Theodosian center, without which successful dissemination of the experiment is hardly possible. The order of the union ministry of public health said that the local public health agencies should render to the Dovzhenko students all kinds of assistance and support, but this looks like no more than good wishes since no concrete measures or instructions were envisioned in this document. Actually the physicians were left on their own. But this psychotherapeutic method of treatment places its own quite definite requirements on the organization of their labor. They must have their own premises--fairly large, a specially equipped and decorated hall for conducting sessions, and to begin with at least a small staff of medical personnel.

And so the second problem is the lack of a material base for Dovzhenko's students. And, finally, the third one--which overlaps with the first--there are no provisions concerning the policy for sending them patients for treatment. This question is very important since so far the majority of students in Feodosiya are from the Ukraine and many republics are not represented at all. This is undoubtedly wrong and convinces us once again that the USSR Ministry of Public Health is still not taking the proper responsibility with respect to the dissemination of this remarkable experience. Unfortunately, this is manifested at literally every step. Thus of the 10 physicians who were sent for training in Feodosiya in December of last year Dovzhenko was forced to send eight back because they had nothing to do either with drug abuse or psychotherapy. And one of the women who had come there when asked a question of why she had taken the trip frankly admitted: "They asked us who wanted to go to the Black Sea? And I agreed...."

Speaking of the need to establish the status of the physicians who are followers of Dovzhenko, one should note that this problem is still not being solved because up to this point the status of the Feodosian Center itself is not defined. At the end of last year the newspaper TRUD quoted the words of the USSR minister of public health, S. P. Burenkov, who told the editorial staff that they intended to give the republic center the functions of an all-union center for training and preparation of drug abuse psychotherapists in the method of Dr Dovzhenko. This has not been done yet. Another good thing is that the center recently ceased to be under the jurisdiction of the Feodosian port polyclinic, which had caused many difficulties and inconveniences in its work. But even this variant--assigning the center to the Kharkov Scientific Research Institute of Neurology and Psychiatry as a second polyclinic for it--is hardly the optimal solution to the problem.

In this connection I should like to express a couple of considerations regarding the organization of this new area in drug abuse. First of all, without delay we should carry out the intention of Minister S. P. Burenkov to transform the republic center into an all-union center for training and preparation of drug abuse psychotherapists in the method of Dr Dovzhenko. Moreover, taking into account the obvious fact that the nontraditional method even today has many proponents among drug abuse experts, including in the union ministry of public health itself, it would be reasonable to put this center directly under the jurisdiction of the USSR Ministry of Public Health who deals with problems of drug abuse in the country. I think with the extremely high results of the Dovzhenko method justifies such a step.

As for the newly formed drug abuse psychotherapy centers (offices), in my opinion it would be expedient to give them the status of branches of the all-union center, putting them under its organizational and methodological jurisdiction. And in the local areas these centers (offices) obviously should be introduced not into the drug abuse services--so that the opponents of the method (and, as was already said, there are plenty of them) who have administrative power could not abuse it--but, say, as part of the psychiatric service from which, incidentally, drug abuse developed. This should be done at least temporarily until the Dovzhenko method proves its viability and effectiveness in the hands of his students. There is possibly some point in eventually making these centers cost-accounting centers as certain specialists suggest.

Science should participate most directly and actively in the work for introducing the Dovzhenko method into medical practice. To do this it is necessary to envision organizational forms for providing for closer and better planned cooperation with drug abuse psychotherapy centers of the Kharkov Scientific Research Institute of Neurology and Psychiatry, which has long been doing a large amount of work in this area. Perhaps it should be given the functions of coordinator of all the activity of the centers and provide organizational and methodological leadership in close contact with A. R. Dovzhenko. In parallel with this, in our opinion, it is necessary to organize further, deeper and more comprehensive research on the method itself: the mechanism of its influence on the patient and the biochemical processes that take place during this. The USSR Ministry of Public Health intends to

create immediately three laboratories at the Feodosian Center for these purposes--a psychophysiological, biochemical and clinical laboratory, but this issue has not been resolved yet.

We must not forget about this issue either. At the beginning of this year the AUCCTU helped the republic center to obtain a spacious new building in Feodosiya, thus providing a radical solution to the problem of premises. But it is temporary since in 5 years this building must be returned to its owner. During this time the center plans to construct its own facility. But nobody can say yet when this construction will be done. It is as though Dovzhenko is back where he started. And even with this building he has plenty of trouble.

In completing this discussion about the problems of the republic drug abuse psychotherapeutic center and those related to the introduction of the Dovzhenko method into medical practice, I say: "Yes, certain expenditures are necessary to solve these problems. But it is quite obvious that they are justified--both socially and economically. If one takes into account the fact that Dovzhenko has already returned tens of thousands of people to creative activity who had appeared to be completely lost to the society, tens of thousands of working hands, the required expenditures have been recouped long ago and many times over. The full economic effect which the Dovzhenko method has managed to provide for the state is many times greater. So to be stingy here means to steal from ourselves. Ideal conditions should be created for Aleksandr Romanovich Dovzhenko--both for his work and for his personal life. And the greatest welcome should be given to his method. It is in the interests of the state.

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BOOK ON WORKER TRAINING REVIEWED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 1, Jan 86 pp 181-186

[Review by R. F. Zhukov, doctor of technical sciences, professor, Leningrad Engineering and Economics Institute imeni P. Togliatti, of the book "Podgotovka rabochikh kadrov" [Training of Worker Personnel] by S. Ya. Batyshev, Moscow, "Ekonomika," 1984, 284 pp]

[Text] A new book by S. Ya. Batyshev, "Training of Worker Personnel" has appeared in the bookstores and like all books by this author they immediately disappeared from the shelves. This is not surprising if one keeps in mind the interest in the subject and also the small size of the edition. Indeed, why is a book by a well-known scientist, an active member of the USSR Academy of Pedagogical Sciences, which is intended for workers who are engaged in training and increasing the qualifications of workers published in an edition of 15,000 copies? After all, there are workers in this profile at all enterprises without exception, not to mention the system of the State Committee for Vocational and Technical Education. One can only hope that this is not the last edition.

The book presents the scientific foundations for the formation of personnel of a broad profile and high qualifications under the conditions of the scientific and technical revolution.

The analysis of the changes in the vocational and skill structure of personnel is interesting. The author is convinced that the organization of their training should be based on an accounting for the peculiarities of the labor of the worker in the modern enterprise, and the content of the training material should be determined by the final goals of training and the specific features of future production activity. Such an apparently clear point is certainly not obvious. There are so many considerations that must be taken into account when drawing up training plans in the system of education and increasing qualifications! S. Ya. Batyshev proceeds from the only thesis--it is necessary to teach what will be required of the students in their future production practice, but not in one, but in several work positions. Narrowly specialized forms of division of labor lead to a sharp reduction of the loading of workers during the course of the shift and to idle time of equipment. The author names enterprises where, for example, machine tool

operators lose more than 20 percent of the shift time waiting for the adjuster. In individual sections this is two to three times the amount of time spent on adjusting equipment.

When various forms of organization of labor and training are considered, including collective ones, a great deal of attention is devoted to training in brigades and to its pluses and minuses. In our opinion, among the unquestionable shortcomings of this training one should include one especially obvious one with individual training in the brigades. It consists in that the training is conducted by skilled workers but they do not necessarily have pedagogical training, they do not know the fundamental pedagogical principles and they are also fulfilling a production assignment. As A. K. Gastev has already said, this kind of training is based on "babysitting." The mastery of abilities according to a particular system, from simple to complex, the development of devices in various stages and phases, and then together they are eliminated. The acquisition of all the abilities and skills envisioned by the professional skills description is becoming difficult to achieve. In other words there is no system in training.

This shortcoming is also reflected in training in the second (related) occupations when a worker in one occupation is assigned to a worker in another occupation and both of them teach one another in the process of joint labor activity. Again this is training "without frills" and will the best devices be learned?

Let us note that the book does not consider an extremely important aspect in the training of workers in related occupations--training in jobs that are included in the technological chain. Yet this especially increases the effectiveness of the work under the brigade contract as a result of reducing organizational intershop idle time. Let us give an example. When completing the construction of ships in one shipyard, workers in various specialties and subdivisions can work in sequence: welders, fitters, painters, carpenters and electricians. The lack of coordination of the completion of certain jobs and the beginning of others which are performed by other subdivisions frequently leads to idle time, which disappears in a brigade of specialists who combine all of the necessary occupations.

The central part of the book is devoted to a development of the theory of occupational and technical training. The scholar began this work as early as 1968. The basic thing in it is to determine what the content of training should be in secondary vocational and technical schools and what new is introduced into occupational training by scientific and technical progress, on the one hand, and secondary education on the other, and how best to organize the overall secondary vocational and technical training for increasing qualifications.

The book gives groupings of occupations according to various indicators and considers each of them in detail. As a result, of the 6,500 occupations used in the country's national economy several dozen occupational groups are singled out for which, in the opinion of the author, training programs should be developed.

In order to develop a model for the training of workers in one occupation or another it is necessary to investigate the production process and all of its elements and to determine not only the skills and abilities which the students must require, but also their capabilities. For example, the mastery of a comprehensive occupation for servicing automated equipment, about which the author writes, one which combines the functions of instrument operators, repair workers, fitter-adjusters, welders, and hydraulic and pneumatic equipment operators is hardly within the capabilities of the majority of students in secondary vocational and technical schools. The more so since such a worker must be able to attune and adjust all of the equipment in the shop or section.

The analysis of the problems of the content of vocational and technical training and secondary vocational and technical schools and principles of the development of training programs and improvement of textbooks is original. S. Ya. Batyshev defends the system approach whereby the ideas for training that are included in the program should be realized in a complex which consists of textbooks, didactic and methodological aids, problem books, reference literature, training films, and technical and other means of training. All this system will provide for creative activity of the students, self-monitoring and feedback.

From this major point follows, for example, the conclusion that under modern conditions not a single textbook, visual aid or other means of training can be created by one author. In the author's collectives, in addition to the authors of textbooks and training aids, compilers of sets of slides and tapes, there should be methodologists, hygienists, designers, artists and printers who work under unified leadership. Yet up until recently all of these methodological, organizational and other means of training have been planned and created by various institutions and various people, without deeply thought out coordination, and the vocational and technical schools try to bring them together through their own efforts.

The theory of training in stages was further developed in the book. Its essence consists in a didactic system of training whereby the training and educational process in the school and production is broken down into basic (stable), special (dynamic) and additional stages of training which are organically joined together in such a way that the subsequent knowledge follows from the preceding knowledge.

In the basic stage there is broad general occupational training and theoretical knowledge is given which is necessary for subsequent work and solving problems within the limits of certain qualifications. General educational and general technical subjects are studied, and the students become familiar with instruments and labor processes. In a certain stage the students are specialized, taking into account the requirements of a specific enterprise, and they are given knowledge which reveals the specific features of the design and operation of instruments, devices and equipment that is used in individual operations and kinds of work; specific devices for safety techniques when carrying concrete technological processes; the peculiarities of processing various kinds of parts and so forth. The additional stage of training is essentially a systematic increase in the qualifications of the

workers. It is especially important for people who have acquired their occupation directly in production. There are 6.5 million of these people in the country, or 75 percent of all the trained workers!

Based on the theory of training in stages it seems expedient to recall experience that is 50 years old when they extensively utilized the method of the Central Institute of Labor (TsIT) for training in work devices. In the pedagogical laboratory of the TsIT they managed to set up a strict experiment, to conduct a series of training sessions, to design training and monitoring equipment, and to classify work devices. At that time courses were organized in the system of the TsIT which were oriented toward emergency training of tens of thousands of specialists from among those who were unemployed and representatives of occupations which would not continue long into the future. In the courses they trained more than 20,000 instructors. From 1923 through 1952 more than 1,600 training points (bases, shops) were created, in which more than 500,000 workers were trained in more than 200 specialties!

It is a great pity that the book under review says almost nothing about the active methods of training. In our opinion, more attention should be devoted to the training of foremen and instructors for schools and enterprises, the more since, because of the reform of the general educational and vocational school, there will be a sharp increase in the number of students in secondary vocational and technical schools, and this will require an increase in pedagogical personnel.

The material of the last chapter is extremely interesting: "Management of Professional and Technical Education" although it is somewhat general in nature.

Here are a couple of points from the chapter:

"Indicators of the development of training institutions in vocational and technical training should reflect the economic potential, scale and level of industrial production of that economic region where they are located. Thus each economic region should have its own "set" of vocational and technical schools which correspond to the peculiarities of the development of business in the region." The examples given in the book show that this is not always the case everywhere.

"It would obviously be expedient for planners of new technical equipment to envision more efficient forms of vocational division of labor of the workers who use this technical equipment, that is, for them to plan the composition of the workers. And this means that even in the stage of designing new technical equipment they should determine the volumes of general technical and special knowledge which will be required of the workers." While completely agreeing with this requirement of the author, let us add that the technical documentation should also include training and methodological materials for the assimilation of new technical equipment which includes also a set of situations for tuning, adjustment and elimination of malfunctions, and also business games for mastering new models of the product.

The book points out the need for the ministries to develop for the State Committee for Vocational and Technical Education scientifically substantiated long-range plan-orders for training workers in the vocational and skill cross section, taking into account the long-range plans for the development of the branches. The author thinks that these plans could be expediently drawn up 2-3 years in advance. This amount of time, in our opinion, is quite inadequate if one takes into account the length not only of training, but also of preparation and organization of the training, but also of preparation and organization of the training process. For this period must include the training of teachers, the development, publication and dissemination of training and methodological literature, and equipment of training facilities, and many other things.

The time and motion study of the working time of the deputy director of a vocational and technical school which is given in the book shows or points out that he spends 45.1 percent of his time solving secondary problems and 45.5 percent attending lectures, and 9.4 percent on individual work with teachers and masters. And it turns out that no time at all is left for solving numerous problems of primary significance.

The majority of conclusions and recommendations in the book, in our opinion, are not only correct and practical, but also essentially necessary for the large army of people who are employed in the training of personnel.

It does not seem to us that there is any doubt about the conclusions in the book to the effect that pedagogy and pedagogical psychology investigate mainly problems of preschool and school training and education, and the subsequent life path of an individual--training in the sphere of production, education and production collectives--has remained outside the field of vision of the fundamental sciences. The very definition of pedagogy as only a science of rearing, education and training of the young generation is largely outdated and does not reflect the objective processes in the development of our society.

Pedagogical science can no longer stand on the sidelines of "postschool" education. Hence the need for the development of a new branch of general pedagogy--production pedagogy, which would develop the scientific fundamentals of the system of postschool occupational and technical education directly in production and would create a theory and methods of continuous vocational and technical education throughout the entire labor life of the individual and would determine the specific features of this training.

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COMPETITION IN BUSINESS SATIRIZED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 1, Jan 86 pp 187-190

[Article by R. Moiseyev, scientific associate of the Institute of Economic Research of the Far Eastern Scientific Center of the USSR Academy of Sciences: "Hockey and the Economic Mechanism"]

[Text] I am a businessman. I do not have much time and so I will make this brief.

We are all behind our hockey team. And suddenly--a loss. The world championship! An utter disgrace!

Our trainers and hockey leaders are right: we must not stand with our mouths hanging open, we must eliminate the causes. Various reasons are given: the composition of the team, the quality of the equipment, the superclub, the internal calendar, the power play, the throw-in, and so forth.

But I should like to draw attention to a reason that is not so special. A larger reason. The more so since people do not talk about it and do not notice it.

I assume that we have not gotten by without the influence of the "economic mechanism."

Do not be surprised, I shall explain.

I myself did not guess immediately.

I heard: "Puck! Puck! Puck!" Many pucks! Twenty, forty, 100 pucks! A record number of pucks! The world record for pucks hit!

Did it not remind you of something?

And this is where it began for me.

This is our notorious "gross output"! The gross output indicator, which has been abused by everyone, but it has nine lives just like a cat.

Precisely so! Pucks, pucks, pucks--but where is the final result?

Let us look into this further: kilometers. Our players during training and during the match run a record number of kilometers in the world. And not only in absolute indicators, but also in the relative ones. Training with weights--these are ton-kilometers. With respect to pucks--you get puck-return per kilometer of running or kilometer-intensiveness of the puck, however you want it. But what are ton-kilometers? The scourge of the national economy and the feedbag for transportation workers.

There is a direct analogy between hockey and transportation. It is necessary to run and carry things--there is no question about that. It is important--why? It is known why--for the final result.

But what is the final result in hockey at the world championship? This is not an stupid question.

I as an experienced businessman think that "their" specialists--from "that" side--have invented their own measure with respect to our "gross output." And that measure is a form of the final result whereby the harder we chase the "gross output," the less our chances of winning.

I shall explain. I shall rephrase the dialectic in practical terms: "Nothing is eternal." And human forces are not eternal, even those of a hockey player. And this is also true of machines, about which our television commentators speak: "The pucks have begun to fall! Finally the finely tuned machine of our team has begun to work at full force!"

Even in the commentary itself can you catch the dialectic?

"Finally"...that means, it happens, and not always.

"Complete"--means it happens, and not completely.

And we do not judge the hockey players personally because they do not always play at "full" force. We know from history: He worked for 6 days and on the seventh He rested. A normal cycle. This has been registered in the labor law.

Of course it is possible to deviate from these biological rhythms: during an emergency, when a facility is being started up, when the plan is under threat. But--it is known that the productivity will not be the same, and the quality will not be the same.

Do you have an idea of where I am leading? "Their" specialists, having calculated the intensiveness with which we are driving pucks and kilometers "uphill," have arranged things so that up until the 7th day they cut off everything and do not account for products. They take into account only the seventh and eighth games, when our teams have declared an emergency and, in keeping with the biological rhythms, do not give their top productivity and quality and "their" teams have been saving their forces up until these days, standing on one leg, even though this is the world championship.

What happens?

Some people say that we cannot allow this, we have too much pride.

I agree. Pride is a holy thing.

But then it turns out that we are playing different games. We are playing for pride and they are playing for the final result. And the results are calculated not according to our pride, but according to their rules!

Thus when chasing the "gross output" we will be constantly in the hotseat while they measure the final result only in terms of emergency days.

This began with the Olympics in Lake Placid, where they sensed the weakness of our hockey mechanism. And then they came: the Canada Cup, the Swedish Cup, the championship in Vienna. And it will continue to be that way, I am convinced, unless we change things.

I am not scolding the trainers. They are not businessmen. They themselves could not guess. We must help them here.

How? What constructive thing does the practice of our economic mechanism provide? Let us look at the examples.

1. To introduce for "them" the gross output as the decisive indicator. But, I think, this will not do. We have no equals when it comes to the gross output.

2. Suggest considering the final result in the system of "to each his own." This is called a dual plan. We would be playing 10 games. They would be playing two. That is convenient, for both of us will be champions. But everyone around must look the other way. And this will hardly happen. The more so since the international federations as the highest authorities are weak and bribeable, and most frequently on "their" side.

3. Establish a system of calculating the results at the end of the games, adjusting the plan, as it were, for the actual results. This is old hat for us and we have become skilled. But there is a danger. All our hope is in the approving agency: in whose favor will it decide? And I see a tendency whereby "their" federations have never revised the results in our favor.

4. Change over to counting in percentages. We have a lot of practice here. I do not spare my planner--I send him on a business trip for the time of the games. He has become good at figuring out percentages. Sometimes I myself cannot imagine where they come from.

On the other hand, "they" are not fooled either, look and you will see that they are giving birth to the same kind of chap and there will be a game not of hockey but of percentages.

5. One could work harder to reach the level of world standards. But I personally--and not only in hockey--think that the level should be our own

natural level. It could turn out to be both lower than the level and higher, but at least it is clear that we would be standing on our own two feet. And if you rush after a world name--you will be eternally catching up. And you will never rise above it. This does not suit us.

6. Introduce material incentives. Forms will be found. Many people throw themselves into this incentive. But as a manager I must warn you: moderation is necessary. It is not good everywhere. Especially when it is necessary to work above one's capacities, with one's soul, on the run.

And if the material incentive goes begging, and it is plentiful and regular, not for anything and not concerning anything--I say as a manager: there will be generated a type who cannot be stopped from overworking. Do not expect enthusiasm in spirit. But just listen: a ruble and a kopeck, a ruble and a kopeck.

So this is not the right suggestion either.

The result. The economic mechanism has let us down in hockey and promises no positive solutions.

Consequently, it is necessary:

a) to pointedly raise the question of bringing the rules for conducting the world championship in line with the peculiarities of our economic mechanism;

b) or change the economic mechanism which, incidentally, has been envisioned in the official documents. Take the orientation toward the final result itself, which we find so necessary. True, the game will not be the same. But these are production outlays, without which it seems we cannot get along.

Thus taking into account the objective force of our hockey, we shall stop giving the opponent food for affected confusion: "What is this inexplicable thing that has happened to the Russians?"

It is better if they are confused about the old saying: "Do not dig a hole for someone close to you or you might fall in it yourself."

As a result of which we will go into the lead again, with all of the consequences from this.

P.S. In order for the collective not to feel uncomfortable that the director is writing about hockey instead of work I shall not give my full signature but just the initials MVL from Kholmagor.

Another P.S. The planner has no objection to a business trip.

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